FLIGHT

MAGAZINE

JULY 1959

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MAX CONRAD'S RECORD-BREAKING COMANCHE

See page 28

the new Fornaire

Available in three models

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The finest all-metal 2-place airplane in the skies today.

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Forney Aircraft Company

1932 LAPORTE AVENUE — FORT COLLINS, COLORADO

HOW THE CHIEF PILOT USES HIS **BELL**

You're the Chief Pilot. Let's say this is a construction firm you work for. In your hangar right now are a Lodestar, a Twin Beech D18, a Cessna 182 and 310. You need them all, for what they'll do. But alongside them you've got a helicopter — a Bell 47J. Why the Bell? Here's a typical morning's answer:

At 10:15 the general superintendent calls; he's got to get to Worksite Alice; no landing strip nearby, and a four-hour drive each way. But by 1:45 you're back. Then at 2:10 the president's secretary calls you to pick up a customer at the airport and fly him into town, twenty miles away. This done, you've just walked in when another phone voice asks you to pack litter gear, stop in town for the doctor and fly to Worksite Cloudloft to handle an injured man. And so it goes.

Whether a contractor, manufacturer, oilman or what . . the Bell helicopter user logs close to a thousand hours a year! What he and his pilot accomplish with the go-anywhere Bell would raise any chief's eyebrows . . just as the Bell's way with a dollar has opened so many bosses' eyes. What we urge you to do *now* is merely give this versatile ship a *trial*. Try it via Charter, Lease/Purchase or Outright Purchase. And bear in mind what a quick matter the Bell check-out is for you and your pilots. Why not write us today for operations and training information on the Bell in today's modern fleet. Address: Commercial Sales Manager, Bell Helicopter Corporation, Fort Worth, Texas. Prompt answer guaranteed.

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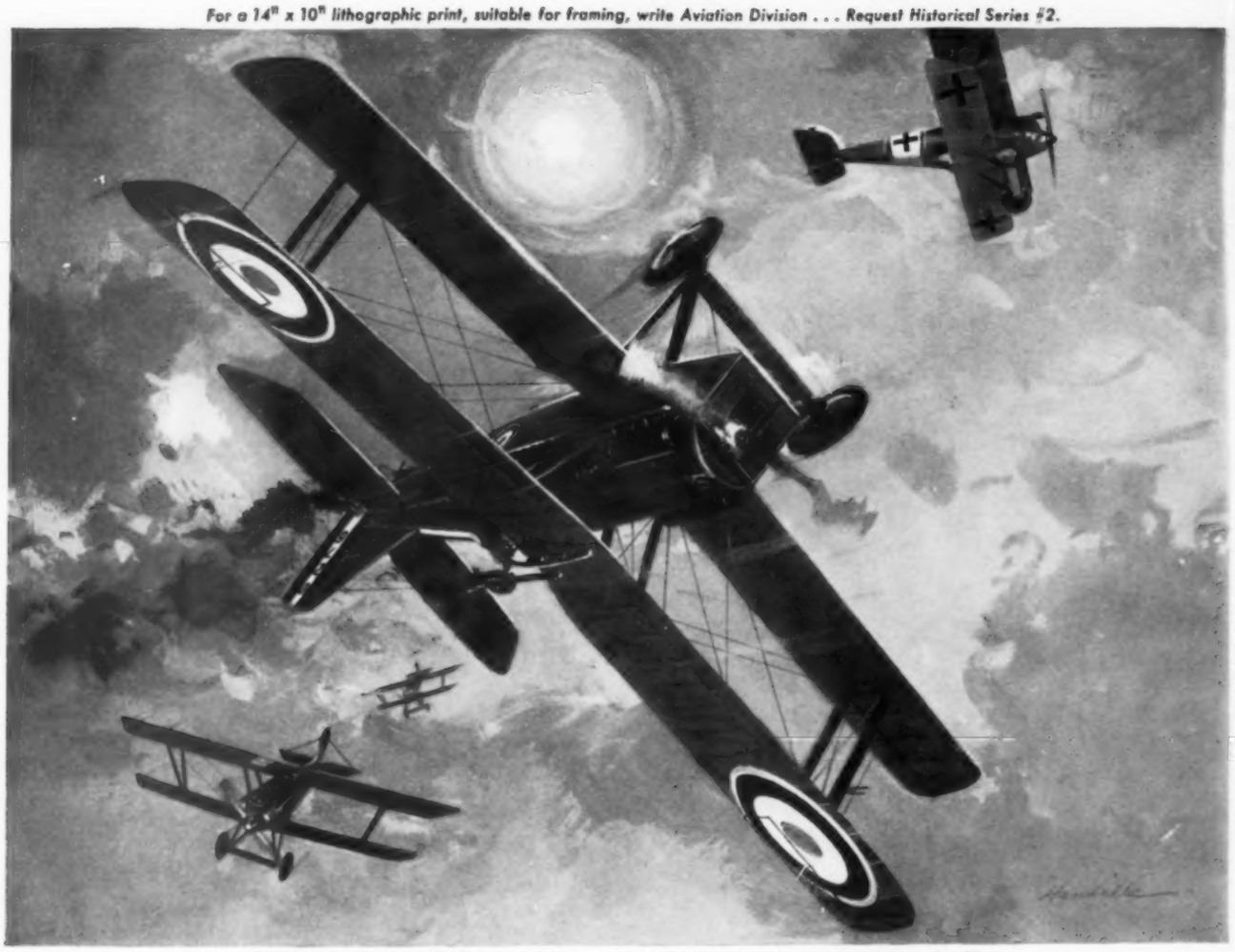
For a 14" x 10" lithographic print, suitable for framing, write Aviation Division . . . Request Historical Series #2.



Major Mannock, in his S.E. 5A, outwits overwhelming odds by pretending to be hit.

Early War Birds— THE S.E. 5A

The S.E. 5A was one of the outstanding British fighters of World War I. When fitted with a 200 h.p. Wolseley Viper engine, it had a maximum speed of 132 m.p.h. at 6500 feet, a ceiling of 20,000 feet, and an endurance of 2½ hours. Although it lacked the quick maneuverability of some designs, the S.E. 5A more than made up for this failing by its extra speed in level flight, great inherent stability, and a structural strength that permitted diving at high speeds. Armed with a synchronized machine gun on the cowling and a Lewis gun on the top wing, the S.E. 5A was a remarkably stable "gun platform" that permitted accurate shooting, even at extreme range.

Of all the great British fliers who flew S.E. 5A's—McCudden, Ball, Rhys-Davids—none was more admired than Major Edward "Mick" Mannock . . . a leading allied ace with 73 victories. Aside from being a skilled pilot, an accurate marksman and a master tactician, he was a good leader who watched over and nursed novice pilots in combat.

In one recorded incident on May 28, 1918, Mannock made himself a "sitting duck" to save a comrade being harassed by a flight of Pfalz. His less experienced companion got clear while Mannock held the Germans off. He then made his escape by pretending to be hit . . . spinning down on his back, apparently out of control. When his pursuers pulled up to watch him crash, Mannock pulled out and made for the Allied lines in a long dive.

A month later, while escorting a new pilot on an indoctrination flight over the lines, Mannock was killed by a bullet from a German infantryman. He remained to the last, unconquered in the air.

Phillips 66

A pioneer in the development of aviation fuels, Phillips Petroleum Company is today a leading supplier of high octane gasoline for commercial, private, and military aircraft . . . and of *super-performance* jet fuels for turboprops and jets. And Phillips research continues to lead the way, developing new fuels for the aircraft of tomorrow.

AVIATION DIVISION • PHILLIPS PETROLEUM COMPANY • BARTLESVILLE, OKLAHOMA

FREEDOM FIGHTER is name of new twin-jet Northrop N-156F developed from supersonic USAF T-38 trainer. Using any of several makes of jet engines, it offers a complete weapon system for friendly foreign governments, with ultimate speed of Mach 2.

AIR Report
Significant Trends and News

PIPER AIRCRAFT'S NEW HIGH-PERFORMANCE LIGHT TWIN, the "Aztec," will be ready for formal announcement before the end of summer. It is powered by two 250-hp. Lycomings, will top 200 mph. and will compete with the Cessna 310 in performance and price.

NEW LIGHTWEIGHT, LOW-COST PNEUMATIC BOOT DE-ICING SYSTEM for Cessna 310C weighs only 50.3 lbs. installed as compared with 93.5 lbs. for the predecessor model and costs $2,950 factory-installed, which is $2,300 lower than the previous system's cost. Developed by Goodrich, the boots operate on compressed air stored in a compact fiberglass accumulator containing sufficient energy for 7 hrs. 24 mins. of de-icing operation on 3-min. cycles. Recharging is through an outside valve aft of the baggage door. Over 20 lbs. of the system's weight can be removed within 15 mins. to lighten the aircraft when desired. It may be purchased as a kit for field installation.

NEW AERO COMMANDER DISTRIBUTOR in North Carolina and South Carolina is Southeast Airmotive at Douglas Municipal Airport, Charlotte. Roland R. MacKenzie heads the new firm, with Gene Hudman, former Aero Commander factory representative, as executive vice president and general manager. Bill Knauff, long-time pilot in the Charlotte area, is vice president of operations.

BUSY TRANSOCEANIC LIGHTPLANE FERRY PILOT MAX CONRAD was back over the water last month delivering a new Bellanca 260 from Minneapolis to England for Downer Aircraft, which manufactures the Bellanca at Alexandria, Minnesota. Conrad, on June 4, completed a Piper Comanche nonstop hop from Casablanca, Morocco, to Los Angeles for a new world's distance record. See page 28 for details.

FIRST BOEING 707 SCHEDULED SERVICE BETWEEN THE SOUTHWEST AND NEW YORK was inaugurated on July 12 by American Airlines between Dallas and New York, with 3 hrs. 10 mins. for the eastbound and 3 hrs. 15 mins. for the westbound trips. AA is now carrying over 2,000 passengers daily in Boeing 707's, operating from New York, Dallas, Washington, Boston, Baltimore, Chicago, Los Angeles and San Francisco.

AIR TRAFFIC AT 750 AIRPORTS THROUGHOUT THE 49 STATES AND HAWAII is being surveyed this summer by the research firm of Booz, Allen and Hamilton for FAA to develop estimates of air activity through

(Continued on page 8)

FLIGHT MAGAZINE

JULY, 1959 VOL. 48, No. 7

THIS MONTH'S COVER is a portrait of Max Conrad's Piper Comanche which he flew nonstop from Casablanca to Los Angeles for a new world's distance record of 7,668.48 miles. It is powered by a 250-hp. Lycoming engine and grossed 5,000 lbs. at take-off, carrying 520 gals. of fuel. Aloft 58 hrs. 38 mins., his flight consumed 485 gals. of fuel and exceeded by more than 800 miles the former world's record held by Pat Boling in a Beechcraft Bonanza.
—(Piper Aircraft Photo.)

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Just Among Ourselves—EDITORIALS: THE MENACE IN RUSSIA; MAX CONRAD'S RECORD DISTANCE FLIGHT; ARMY AVIATOR OF THE YEAR; CLOSE KINSHIP; DIGGING YOUR OWN GRAVE . . 17

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; LOUISE ROBERTSON, Circulation; E. H. PICKERING, Consultant; P. O. BOX 750 (2700 N. Haskell Ave.), Dallas, Texas — Telephone TAylor 3-6191.

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Scores high in short-field capabilities

JETSTAR, MODEL 329, SHOWN OVER 5,000 FOOT RUNWAY AT TORRANCE MUNICIPAL AIRPORT, CALIF.

Each dot on this map represents an airfield where Lockheed's new JetStar can land and take off – 28 times the number of cities where big jet airliners can land. This means added convenience and competitive advantage to forward-looking executives.

Fully pressurized and air-conditioned, the JetStar's spacious cabin has over 6-foot headroom throughout. Executive interiors can be customized to meet your specific requirements.

Your first flight in a JetStar will be a revelation. With full payload and full fuel tanks it takes off in less than 3,000 feet. It climbs 4,000 feet a minute, effortlessly. You're at above-the-weather altitudes (up to 45,000 ft.) before you realize it.

Cruising at 575 miles per hour, the cabin of the JetStar is amazingly quiet and vibration-free. Reason: the JetStar's 4 reliable Pratt & Whitney JT-12 jet engines—each developing 3,000 pounds thrust—are aft-mounted on the fuselage. This means added safety, too. Engines are *behind* pressurized areas, fuel tanks and wing.

The JetStar's excellent slow-flight characteristics enable it to make FAA-approved landings at airports with runways of less than 5,000 feet—at maximum landing weights. At these weights, the actual ground roll is *less than 2,000* feet. This compares favorably with current corporate aircraft that cruise 200 miles per hour slower than the new Lockheed JetStar.

Now in production at Lockheed's Georgia Division, the JetStar provides the world's finest transportation for the world's busiest men.

For a JetStar Route Study of your air transportation requirements, write: JetStar Commercial Sales, Lockheed Georgia Division, Marietta, Ga.

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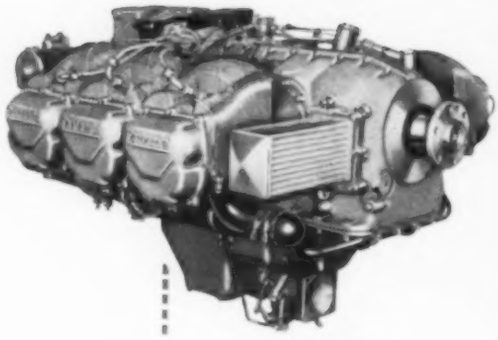
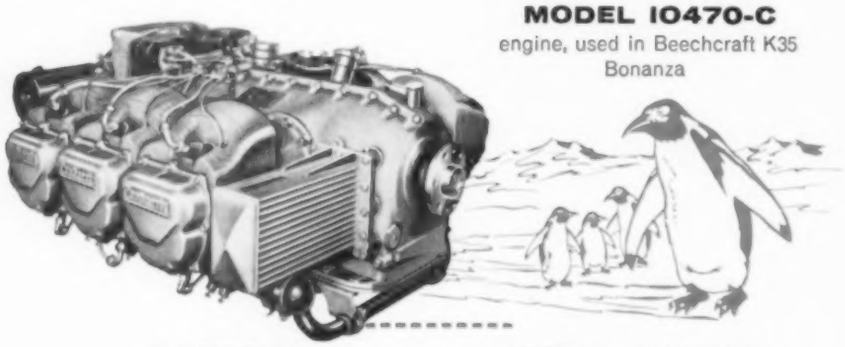


MODEL IO470-C
engine, used in Beechcraft K35 Bonanza



MODEL IO470-D
engine, used in Cessna 310-C twin engine executive aircraft

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NEWEST BEECHCRAFT DISTRIBUTOR is Business Aircraft, Inc., Houston International Airport, with territory of 43 counties in South Texas and Louisiana. Nick Petkas (right), head of the new firm, is shown with Beech Sales Manager Leddy Greever and Regional Manager Bob Jessen. Pat Corley, vice president, and Jerry Rice, secretary-treasurer of Business Aircraft, are officials of Panama, Inc., a pipeline contracting firm.

—(Beech Photo.)

AIR REPORT

(Continued from page 5)

1980. Civil Air Patrol units are assisting by presenting questionnaires to pilots. Sixty-seven "cells," each 60 miles square, were selected for the sampling, with 90% of the general aviation aircraft based in each cell to be sampled. The survey began on July 9.

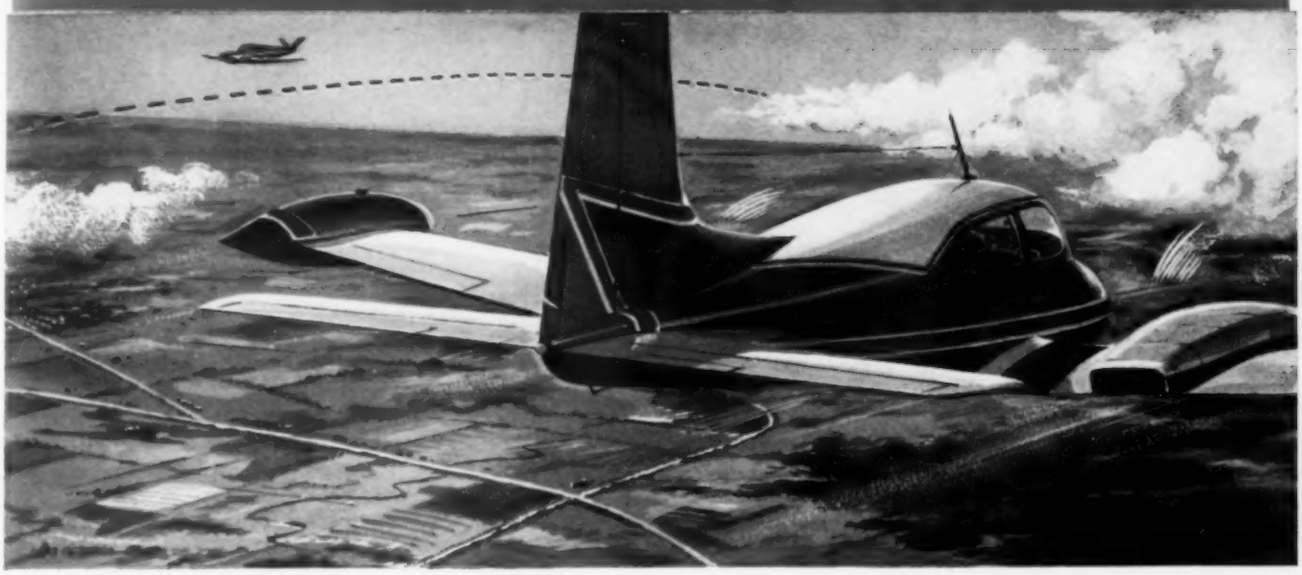
SIGNIFICANT NEW CONTRACTS: Over $6,000,000 for T58 turbines from General Electric for Navy's single-engine Kaman HU2K-1 utility copter and twin-turbine Sikorsky HSS-2 copter. The T58 produces 1,050 hp. and weighs only 271 lbs. . . . Over $25,000,000 for Navy F8U-2N Crusader fighters from Chance Vought Aircraft. . . . About $19,000,000 for Army Chinook YHC-1B twin-turbine transport copters, powered by 1,940-hp. Lycoming YT55 turbines. . . . About $500,000 for modification of four Army HU-1 Iroquois copters by Bell Helicopter Corp. for installation of more powerful 960-hp. Lycoming T-53-L5 turbine.

BUSIEST AIRPORTS during 1958, ranked in order of number of itinerant operations according to FAA control tower records, were as follows: 1. Chicago Midway 397,765, 2. Los Angeles 296,730, 3. Dallas 280,753, 4. Washington, D. C. 279,484, 5. N. Y. LaGuardia 255,903, 6. Albuquerque 219,430, 7. Miami 218,084, 8. N. Y. Idlewild 210,710, 9. Atlanta 198,838 and 10. Honolulu 196,595. There were 40 airports in the U. S. with more

(Continued on page 54)

ESSO

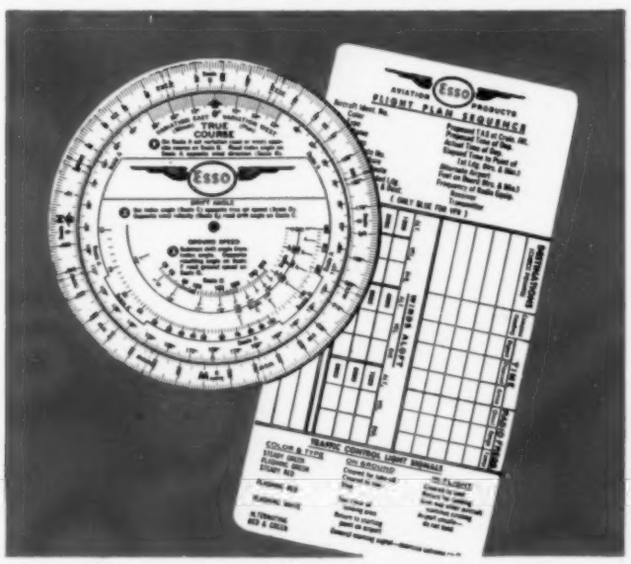
WING TIPS



KNOW WHAT'S RIGHT. Remember when flying on a low frequency airway stay *right* of the center "line" as shown. But when using an omni-range keep the needle in the center. Always remember whatever "line" you plan to fly be continually on the alert for other planes – in all directions. Practice airway safety—as you do highway safety—it pays.

CHECK YOUR ALTIMETER. In addition to a careful setting of your altimeter before take-off, be sure to check it en route particularly when flying into a low-pressure area because it will read higher than you actually are.

REMEMBER. For "Happy Flying"... look for the famous Esso Sign from Maine to Louisiana for the most dependable aviation products.



YOUR POCKET CO-PILOTS. The Esso Flight Calculator and Flight Plan Sequence Cards are two mighty useful friends. Use the Calculator to quickly solve problems covering speed, drift, course, fuel consumption and many others. The Sequence Card provides space for a complete flight plan outline. Made of plastic, it can be easily wiped clean for re-use. Just ask your Esso Aviation Dealer... They're free!

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This 10-12-seat transport is powered by two Rolls-Royce Dart prop-jet engines already proven by millions of hours of airline operation. The Gulfstream cruises at 357 mph and has a range of 2,200 miles plus reserve. Pressurization at 25,000 feet provides a comfortable cabin altitude of 5,500 feet, permitting operation above the weather and traffic. The Gulfstream's ability to get in and out of the smaller airports vastly increases its utility and scope of operations.

Henry J. Schiebel
Sales Manager
Grumman Aircraft Engineering Corporation
Bethpage • Long Island • New York

Grumman is currently producing three Gulfstreams each month and will maintain this production schedule so that twenty-seven will be in use by leading corporations by the end of this year. You are invited to inspect the Gulfstream at one of the following distributors: Atlantic Aviation, Wilmington, Delaware; Southwest Airmotive, Dallas, Texas; Pacific Airmotive, Burbank, California; and Timmins Aviation, Montreal, Canada.

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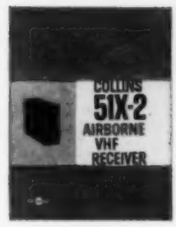
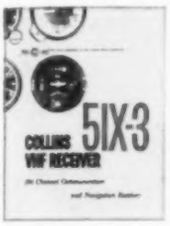


7 VHF COMM/NAV Receiver, 880 crystal controlled channels



8 Crystal controlled 190 channel VHF NAV/COMM Receiver

9 Modular Marker Beacon Receiver with 3 light service

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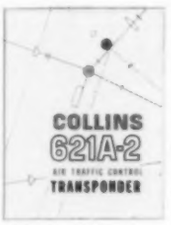

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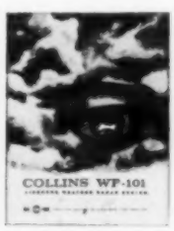

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LUCOMPANY ANNOUNCES . . .

nspark plug—for smooth ffclimb-out and cruise!

New firing-end design provides greater "self-cleaning" action— a major advance in spark plug engineering!

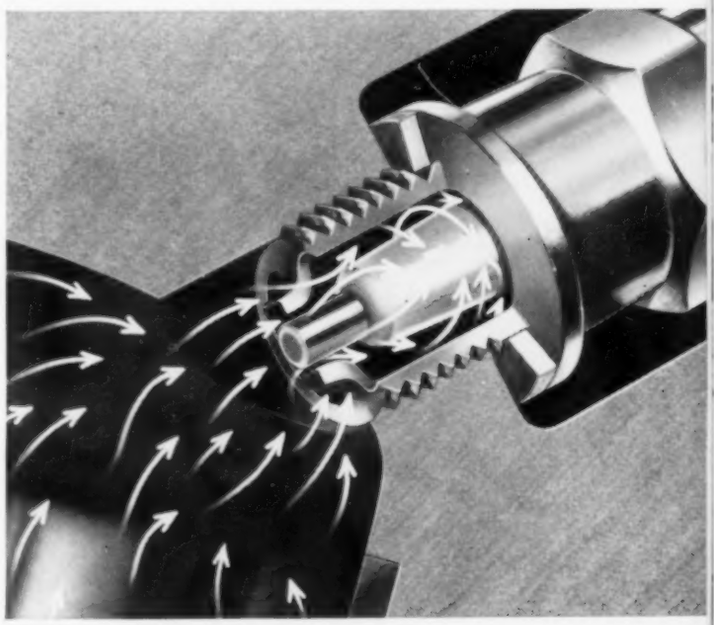
The new Champion *foul-resistant spark plug* has already been CAA-approved for use in Lycoming and Continental engines. It has also been thoroughly field-tested by aircraft operators, who report far less plug fouling than with other plug types.

This is because of Champion's completely new firing-end design. A two-pronged electrode plus a larger bore allows greater entry of turbulent combustion gases. These gases clean away many of the deposits that ordinarily form on the core nose. And the core nose is longer, to give even greater exposure to the cleansing gases. This means:

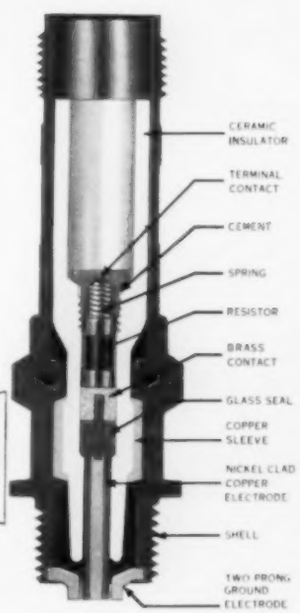
- Greatly improved fouling protection regardless of severity of operating conditions – from idle through takeoff to prolonged flight. (One operator, who normally got only 20 hours on plugs between cleanings, reported 100 hours with these new *foul-resistant* Champions.)
- Fewer unscheduled spark plug removals: More assurance that when your schedule says "go" – you *go!* And you're there on time. (Little danger of being grounded elsewhere to clean or switch plugs.)
- Virtually eliminates burn-out . . . you'll notice much less RPM drop when pulling your magneto check!
- Engines *remain* smooth—even on prolonged flights where fouling deposits could build up on other spark plugs.

For *peak* performance from *your* engine – smooth, continuous full-firing power and dependability at takeoff or in flight – try Champion's new *foul-resistant* spark plugs!

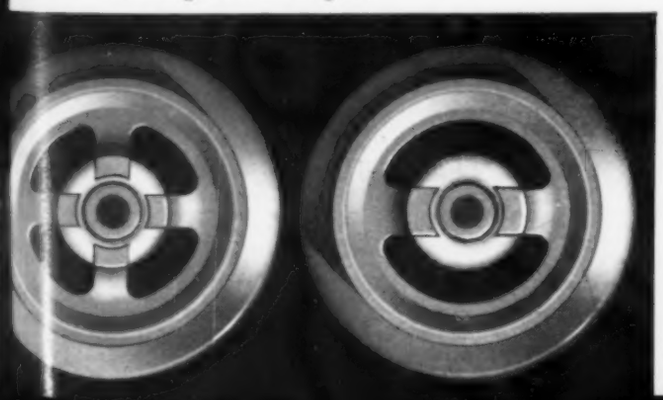
Approved for Continental and Lycoming engines, available in All-Weather RHM 38E and RHM 40E for ⅜-20 installations, as well as REM 38E and REM 40E for ⅜-24 harness.



Longer core nose is exposed to full blast of turbulent, cleansing combustion gases, providing greater protection from fouling-deposit build-up regardless of operating conditions. (Longer core nose also provides longer path to ground to reduce chances of shorting.)



Notice how Champion's new two-pronged electrode design (right, below) provides a larger bore opening, allowing entry of a far greater volume of turbulent, cleansing combustion gases.



CHAMPION

SPARK PLUGS

CHAMPION SPARK PLUG COMPANY • TOLEDO 1, OHIO

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departmentalized specialists

in each weight category

- Maintenance
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- Engineering
- Modification
- Electronics
- Hydraulics

Possibly no one piece of machinery is as complex as a modern airplane. Likewise, no two airplanes are alike. That is why DALLAS AERO SERVICE follows a policy of departmentalizing maintenance of aircraft in different weight categories. Our aircraft maintenance division is divided into three separate departments for heavy, medium and light aircraft. The crews in each of these departments are rated specialists for each aircraft classification. These technicians are familiar with all bulletins and factory recommended procedures. Their work is speeded by the use of special tools and equipment for the various kinds of aircraft. This DAS specialization plus factory new parts and accessories means a superior job in minimum time.

Corporate, business and private aircraft owners by greater and greater numbers are relying on DAS for departmentalized maintenance and the perfectionism that stems from our specialization. This Dallas Aero Service operational policy has saved our customers thousands of dollars and extensive time delays.

May we make a suggestion? Next time you have a service or maintenance problem let the people who know your airplane best — **the specialists of DAS** — solve your problem.

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This transmitter is recommended for use with ARC's line of tunable receivers, (R-13B and R-19) for a primary communication system on small aircraft or as a "back-up" to ARC Type 210 Transmitter-Receiver on larger aircraft.

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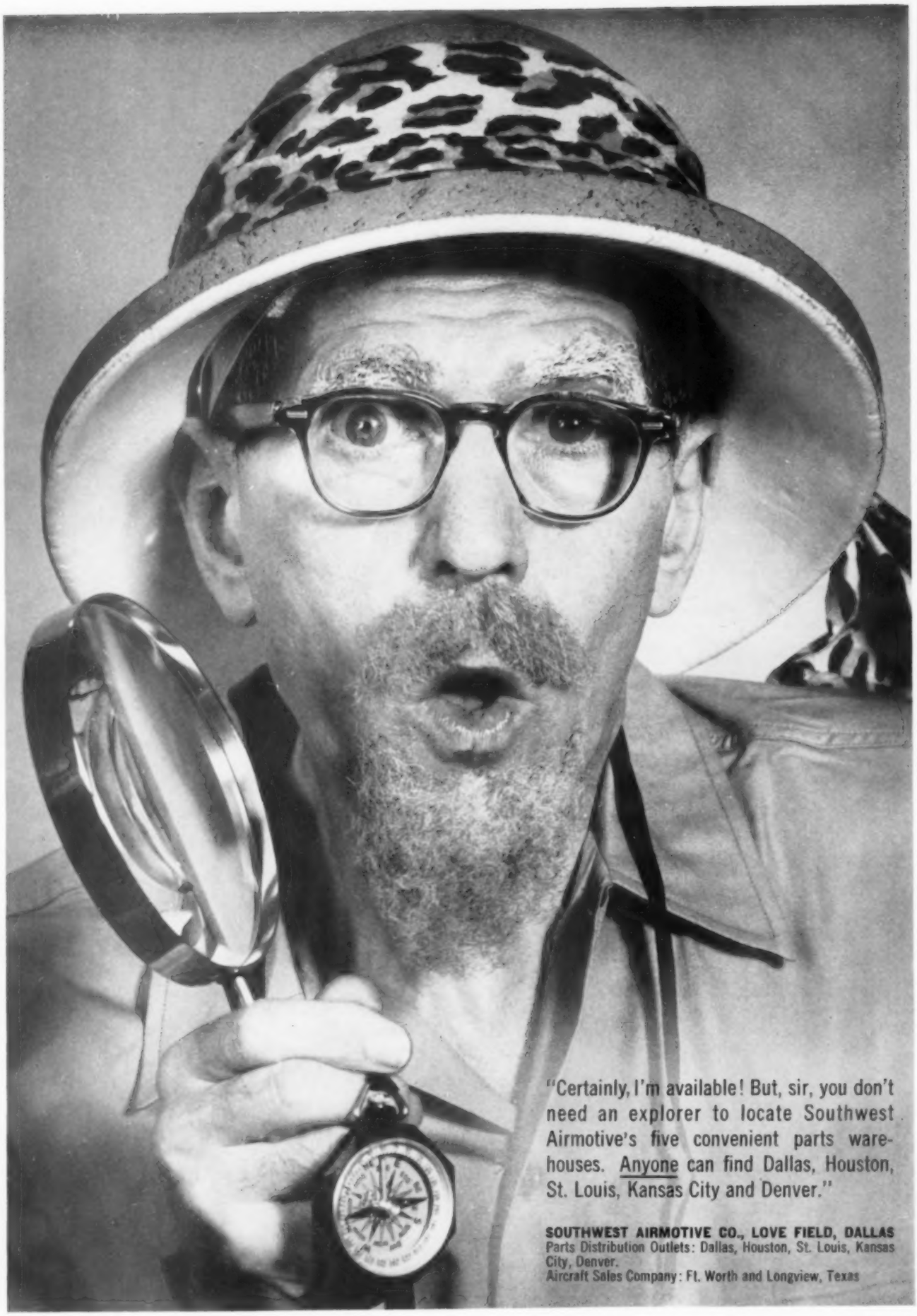
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EDITORIALS

The Menace In Russia

DELEGATES from some fifty nations to the 1959 Federation Aeronautique International conference held recently in Moscow had a golden opportunity to see Russia in a far more realistic manner than the average tourist, who usually sees only what the official Russian tourist agency (Intourist) lets him see.

We were permitted to mix, mingle and talk with citizens in all walks of life, including world famous airplane and engine designers of the Soviet, high ranking political leaders from Mikoyan on down to the people in the streets. The lavish receptions and special entertainment every night the group was in Moscow make us hesitant ever again to speak of "southern" hospitality!

The Central Aero Club, host to the FAI conference, pulled all the stops to stage what is generally conceded to be one of the best FAI conferences in history. An excellent air show was on the menu and we can honestly say it was as polished and as spectacular and perfectly timed as any we've ever seen.

We were impressed, too, with the very apparent material progress of the people, but this was somewhat modified by the fact that such progress is even greater in the Western countries. The most lasting impression was the complete control the party rulers have over the lives and thoughts of the masses. This was the real "shocker" of the trip to Russia and it was only after a few days in the country that this awful truth came pounding home. Previously we had believed the ice was melting a little under the new Kremlin leaders' attitude as compared with the police state of Joe Stalin. We had thought that the ending of the self-imposed isolation of postwar Russia in 1954-1955 in letting tourists visit the country, in working out student and cultural exchanges and reciprocal operating agreements with airlines of the West and other little pieces of evidence of relaxation all pointed to progress toward the Khruschev line of "peaceful co-existence." But the deeper we dug into reality the more we felt that the "new line" was far more hypocritical, far more diabolical and far more sinister because the current crop of Soviet leadership is far more astute and clever. Witness the number of people coming home under the impression that Russia and Communism aren't really as bad as painted.

Our personal investigations, observations, contacts and expeditions convinced us that within the country under airtight, ironbound control the Kremlin is teaching hatred of the West, particularly of America, night and day, year in and year out and that all this talk of love and peace and sweetness and light is for export only.

These are not comforting words and probably would be out of place in an aeronautical journal were it not for the fact we later flew along the real iron curtain and lived with our troops along the border, looking down the commies' gun barrels behind a wall that they, not us, had built.

Needless to say no one who spends a few weeks in Russia is an expert on this greatest enigma of all times. But we are compelled to write factually and with complete dedication on what we actually saw. These facts (and there will be more in forthcoming editions) are:

1. Russia (World Communism) is not a hypothetical enemy — they are a real, self-asserted enemy and are out to get us.

2. Russia is the greatest and strongest military threat we and our allies ever faced in all history.

3. We are vulnerable to their clever propaganda but they are not vulnerable to ours.

4. The United States can not afford the slightest gamble on weak leadership, inefficiency in government or business or balanced budgets at the expense of our military strength.

5. We must, in all haste and calm deliberation, devise some means to provide the youth of our nation a complete, factual and intelligent briefing on the nature of the enemy, at least once during their formal education and positively include a military briefing to all U. S. males in advance of their military induction.

The Russians are generally nice people. They have good manners. They work hard. They are hospitable. We do not want to appear to be an ingrate. Our conscience is clear, however, because we were just as hospitable to them last year when FAI came to the United States. The Russian people are not running their country. Six million members of the Communist Party control the lives and thoughts of 200,000,000 Russians. They are being taught day and night to hate and to fear us. They are tools in the world conspiracy to destroy us by fair means or foul.

If this be war mongering, make the most of it.—G.E.H.

Max Conrad's Record Distance Flight

WE salute Max Conrad and Piper Aircraft Corporation for their success with a 4-place, 250-hp. Comanche in establishing a new world nonstop distance record for lightplanes — 7,668.48 miles as measured by Great Circle distance between take-off at Casablanca in Africa and landing in Los Angeles. It took Conrad 58 hours and 38 minutes of continuous flying to cover such a great distance.

Actually, he travelled about 8,300 miles but FAI rules apply the shortest distance between take-off and landing. This gives us two sets of

Comanche and Bonanza Non-Stop Flights Compared

(FLIGHT MAGAZINE Compilation)

	Max Conrad Piper Comanche Casablanca-Los Angeles	Pat Boling Beech Bonanza Manila-Pendleton
Date of Landing	6/4/59	8/1/58
Hours: Minutes Aloft	58:38	45:43
Fuel Used, gals.	485	391
Actual Miles Flown	App. 8,300	App. 7,090
Average Speed, mph.	142	155
Average Fuel Consumption, gph.	8.3	8.5
Miles per Gallon	17.1	18.1
Record Distance by Great Circle, mi.	7,668.48	6,856.32
Avg. Spd. for Great Circle Dist., mph.	130.9	150
Mi. per Gal. for Great Circle Dist.	15.7	16.7
Take-off Horsepower	250	250
Take-off Gross Weight, lbs.	App. 5,000	4,964
Total Fuel Capacity, gals.	520	402

NOTE: Comanche carried all fuel inside; Bonanza used tip tanks.

figures for average speed and miles per gallon — 142 mph. for actual distance and 130.9 mph. for the record distance, and 17.1 miles per gallon for actual distance and 15.7 miles per gallon for the record distance. Both, however, show it to have been a significant accomplishment — the greatest solo distance flight in aviation history. See page 28 for details.

Max Conrad and his Comanche demonstrated that this fine single-engine business airplane has the mechanical integrity to make an 8,300-mile trip, or continue operating 58 hours and 38 minutes, without interruption and without requiring servicing of any kind. Such a trip, for practical purposes and with the usual stops, might take a load of businessmen or a family from Florida to Alaska and back, or around the United States, or to South America and back with complete confidence in the Comanche's mechanical dependability and operating efficiency. It means that modern lightplanes and their equipment have reached a stage of product development seldom appraised for their fullest capabilities.

It is important to recognize, however, that Max Conrad is due the lion's share of credit for the record flight. No ordinary pilot, he has made many transoceanic flights under all conditions. He knew his equipment's limitations as well as its potentialities and he operated well within them at all times. Any pilot attempting to do otherwise would never have gone as far as Max Conrad, regardless of the equipment's excellence.

Another point needing emphasis is that distance records are competitive affairs. Conrad has won for Piper Aircraft the record formerly held very securely by Beech Aircraft with its marvelous 4-place Bonanza. Continuous improvements inspired by commercial competition made the victory possible for Piper, and its accomplishment will stimulate still more progress in the development of better business airplanes in a highly competitive market. Thus the public reaps the benefit in the form of more efficient and more dependable aircraft for private transportation by air.

A comparison of record distance flights made by Max Conrad in a Comanche and Pat Boling in a Bonanza is thus called for — both airplanes took off with the same horsepower and approximately the same gross weight. The accompanying table shows how their performance compared. It should be studied by everyone interested in developing better airplane performance.

So congratulations, again, to Max Conrad and Piper Aircraft for a great record, confirming again the extraordinary capabilities of modern business planes in the lightplane category.

Army Aviator of the Year

A BETTER man can not be found than Captain James T. (Butch) Kerr for the Army Aviation Association's coveted Army Aviator of the Year Award. Instituted this year for the first time, it was presented to Captain Kerr last month in Washington at the Association's 17th anniversary luncheon.

Captain Kerr at 39 has spent 22 years in aviation. A native of the late Claire Chennault's hometown of Waterproof, Louisiana, he started in civilian aviation at 17 as a mechanic's helper for Charping Air Service at Greenwood, Mississippi, a crop dusting outfit with which he learned to fly and obtained a private pilot's license. He entered the Army in 1940 as a private and was among the first assigned

(Continued on page 21)

THE 1,000th PIPER COMANCHE has been delivered less than two years after the 4-place low-wing model's certification — a sales record for airplanes in its class. Wilbur S. Davis of Shiro, Texas, purchaser of the Comanche, is shown at center below with Piper Sales Manager J. W. Miller (left) and Don Curtis, Piper dealer at Bryan, Texas, who made the sale.

Captain J. T. (Butch) Kerr

TEMPO II . . . A fully Pressurized 350 mile per hour...Ten passenger...Executive version of the famous Douglas-built B-26.

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Transmitter, receiver, power unit, shockmount

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Add the new Lear Glideslope receiver including VOR/ILS indicator complete for **$875.00**
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THE NEW LEAR NAVCOM 100

Package "A" $1095.00

Includes 5611 Receiver, 5640 Transmitter, 2355 Power Supply – Modulator – Amplifier and Shockmount. Provides ample frequency coverage to operate your aircraft even in high density zones. 90 channel transmitter, 190 channel receiver, both crystal controlled.

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Adds the 2374 NavPac which provides VOR and localizer signals to the 4080 visual indicator. Also the 2374 provides 75 mc marker beacon signals to phones or speaker and to signal light indicators. Also adds the 4080 indicator which provides rotable omni-bearing selector, to/from indicator, localizer flag and direct reading reciprocal bearings.

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Utilize all ILS facilities with the addition of the 10 channel, crystal controlled 5607 Glideslope Receiver and 4087 Indicator. This model 4087 indicator can replace the 4080 or be added. It provides glideslope presentation with individual flag alarms for the G/P and LOC. All this for an additional **$875.00** (shockmount extra)

See your Lear Distributor for an eye opening demonstration.

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to the Army's aviation experimental unit at Ft. Sill in January, 1942, when it consisted of 24 planes, six mechanics, including Kerr and 25 "non-rated" fliers. Today the "Ft. Sill experiment" has grown to a size of 5,000 aircraft.

Butch Kerr rose from the ranks, becoming a second lieutenant in 1951. A Senior Army Aviator, he holds the Army's special instrument card for fixed-wing and rotary-wing aircraft, is a designated Army instrument examiner, and holds a string of FAA certificates and ratings including airline transport rating, single and multi-engine airplane and helicopter pilot, flight instructor, rotor craft, airplane and instrument, flight engineer certificate, A & E certificate, all ground instructor ratings including Link trainer and control tower operator.

Close Kinship

ARMY aviation celebrated its 17th "birthday" last month and we were privileged to be on deck in Heidelberg, Germany, for the Western Europe festivities.

As most everybody knows, Army aviation actually started in 1907, the Signal Corps purchasing an airplane from the Wright Brothers. But Signal Corps aviation became the Army Air Corps, which in turn broke loose from the Army and was transformed into the U. S. Air Force. Hence the "new" Army aviation is celebrating its 17th birthday.

The close relationship between Army aviation and U. S. civil aviation is getting even closer now that the high-flying jets and space men are taking over in the other branches of our military services. The Army and civil aviation fly the same kinds of craft in the same atmosphere as the huge body of U. S. civil aviation. We use the same kind of power, instruments, communications equipment and the same techniques in training and in maintenance. We are indeed blood brothers.

Following a week's tour in Germany with the Army, observing its amazing utilization of conventional fixed-wing and rotary-wing aircraft, we are even more conscious of the kinship. Every time the Army spends a dollar in research and development civil aviation automatically profits. At the beginning, of course, Army aviation 17 years ago started with the products civil aviation dollars had created. But now, and even more in the future, it will be civil aviation on the big receiving end of Army developments, especially in the helicopter and turbine power areas of progress.

We congratulate Army aviation on its 17th birthday and its 50th year of aircraft utilization. Let's see to it that the bond between civil and Army aviation is made stronger down through the years for mutual progress, profit and national strength.

Digging Your Own Grave

THE National Pilots Association has uncovered an amazing and totally unacceptable action on the part of the Federal Aviation Agency. Last February an NPA member was flying his Bonanza from Lexington to Louisville. The weather was good but he had filed an IFR flight plan on airway V4N on a course of 294° and at an altitude of 3,000 feet. Shortly out of Lexington he saw another private plane off his left wing tip. It dove and passed under him too close for comfort and disappeared from view. A few minutes later at the Bridgeport intersection he reported his near-miss incident. The communicator suggested that he report the incident to Louisville Control upon landing as the FAA was very interested in such reports.

This he did. Later he spotted the other airplane and met the pilot, introduced himself and convinced the pilot he, too, should give the FAA his version in the interest of safety information and studies. On March 3 he received a friendly letter from FAA requesting more detailed information on certain points. He supplied the answers and on March 19 he received a not so friendly letter accusing him of violating four different sections of the civil air regulations. After several more exchanges he received on May 29 a fifteen-day suspension of his pilot's license.

This unsuspecting pilot literally hung himself, even as you and I might have done. Behind the scenes was a conspiracy to soft pedal near-miss reports and he got caught in the web. Of course our NPA member has appealed to the Civil Aeronautics Board.

Let's all hope there's a full-dress hearing under oath so that we can stop this kind of ridiculous hamstringing of aviation that can only end in pilots and owners getting bitter and harrassed to the point of giving up flying. If the old "police state" methods of predecessor aviation agencies are creeping back into the new FAA, let's knock 'em in the head before they breed into a major epidemic.

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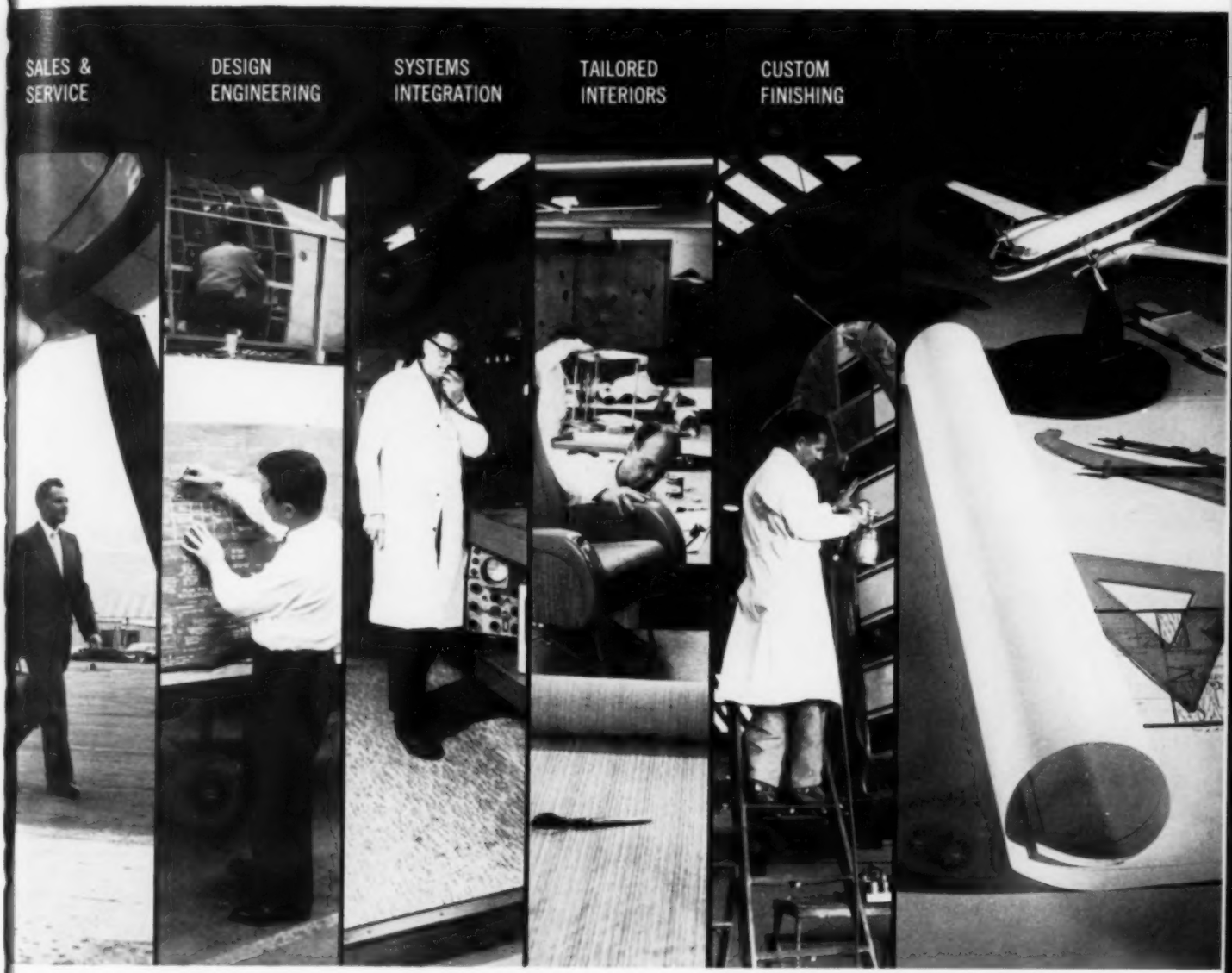

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- Complete interior and exterior painting design has been worked out with the customer.

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We invite you to visit Brown Aero Corp at Addison Airport in Dallas or Midland Aero Corp at Midland Air Terminal in Midland to inspect the new models and find out why Aero Commander is management's business machine of the air.

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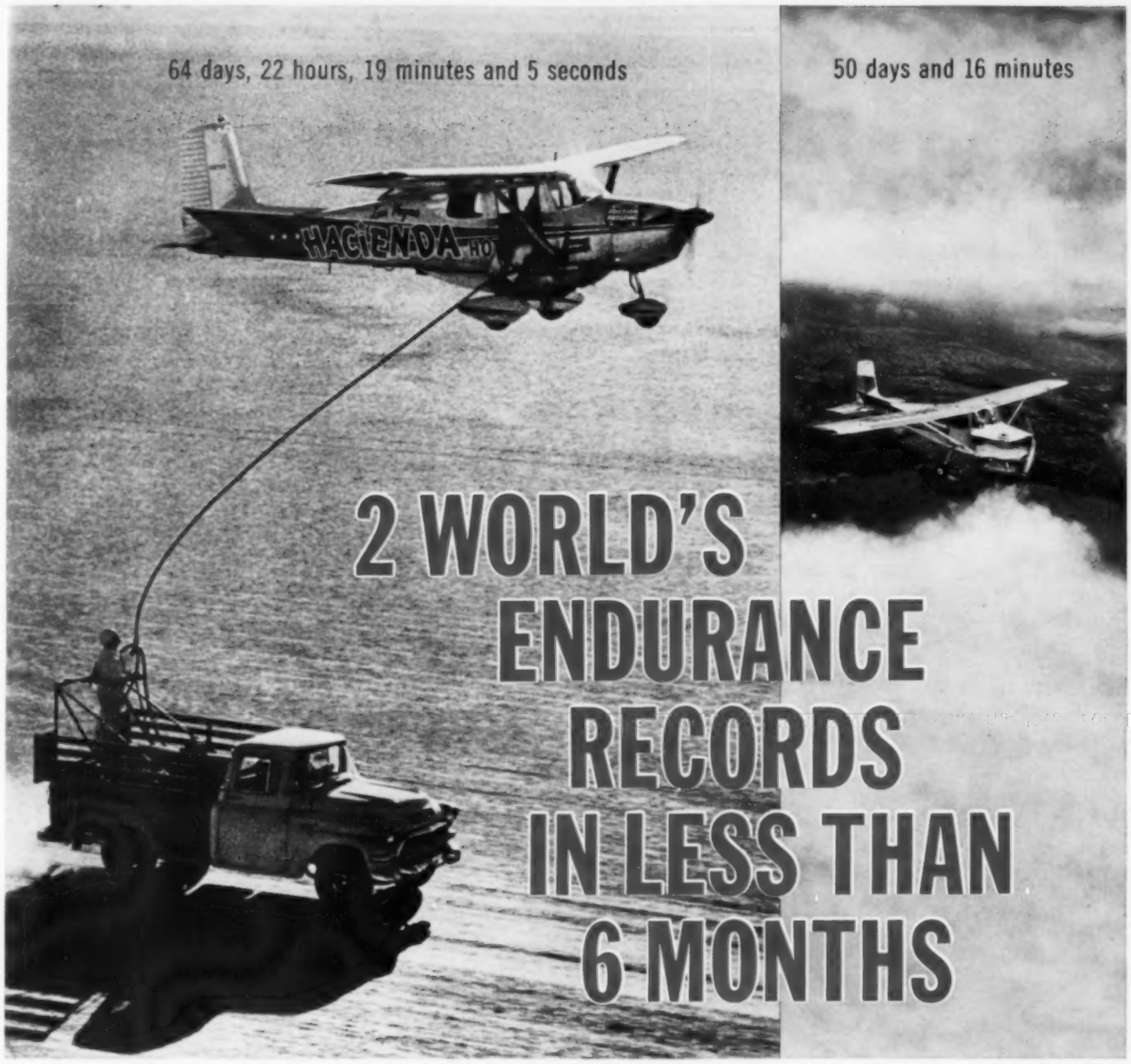

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Wynn's Friction Proofing was used in the gas and oil on *both record-setting flights* to help assure in flight protection against damaging friction and wear.

Precise measurement and examination of every engine part before and after the first flight made it possible to have exact comparative data. CAA findings for instance, revealed that piston rings moved freely at the end of the flight and showed no sign of gummy or sticky deposits. Valve stems, cam followers, hydraulic valve lifters and rocker arms showed no signs of wear whatsoever. And, after 1200 hours of continuous flight, *engine compression was just as high as it was the first day.*

Wynn's Friction Proofing aviation products in *your plane's fuel* will protect metal surfaces from wear and keep engines "overhaul" clean. They will improve combustion and prevent spark plug fouling...remove moisture, rust and corrosion from the fuel system...free your carburetor of gums, tars and resins.

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CAA states: "We consider Wynn's Friction Proofing Fuel Conditioner and Wynn's Friction Proofing Heavy Duty for Aircraft Engines (Special Concentrate) acceptable for use in light aircraft with reciprocating engines of not more than 260 horsepower."

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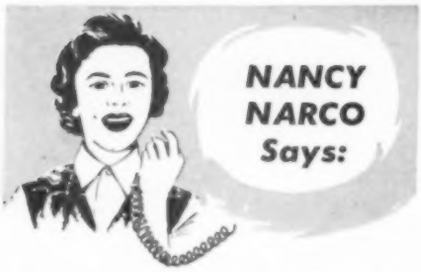

What About New FCC Rules?

Sure good to see so many of you trying so conscientiously to stay legal in your radio operation. Seems like the job is getting tougher and tougher. Got so bad lately that an FAA Safety Agent asked me to please explain the difference between TSO and Type Acceptance. Let's boil it down.

The Federal Aviation Agency (FAA) governs the air space, the aircraft in it, and the airmen in them.

The Federal Communications Commission (FCC) is an agency which controls the transmission of radio frequency energy, licenses the devices which emit this energy (transmitters), and licenses the operators of such devices. The rule book for the FCC is separate and distinct from the rule book for the FAA.

Now, let's talk about the FCC. Some years ago the radio-active scientists in the FCC found that the transmitters they were licensing were starting to get in each other's hair. Something about too many transmitters trying to use not enough frequencies. Undismayed, they invented some newer, tighter regulations governing the technical characteristics of these transmitters.

The FCC has been busily applying these new regulations to the transmitters they license for television broadcasting, police and mobile radio, industrial communications, marine radio, and all other services including the aviation service. In order to do their job, they had to provide rules to gradually phase out the transmitters which did not meet these new regulations with as little hardship as possible, and phase in the new transmitters meeting the new regulations as rapidly as possible so that the trend toward increasingly cluttered radio frequencies would be reversed before serious interference caused interruption of vital communications services.

So, on and after July 1, 1959, no *new types* of transmitters in the aviation services will be licensed unless they meet Type Acceptance requirements and are so listed by the FCC. But *old types* of transmitters which have previously been acceptable and licensed by the old FCC rules will continue to be licensable until January 1, 1965. After January 1, 1965, no transmitters will be licensed unless they comply with the FCC Type Acceptance requirements, and are so listed.

Narco, and I'm sure other radio manufacturers as well, have managed to go through all this exercise and can tell you which of their transmitters in past or present production meet with FCC regulations. Narco has prepared a thorough and comprehensive bulletin on its product line with this licensability problem in mind, and this bulletin, No. 457, is available for the asking. Write to me, I'll be glad to send you a copy.

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EASY, INSTANT, CRYSTAL-CONTROLLED TUNING OF ALL NAV/COMM FREQUENCIES

The Mark V gives you far greater usefulness than any other communications unit because its receiver section—separately controlled—takes in not only all COMM channels but all NAV frequencies as well . . . all 190 channels, instantly, precisely crystal-tuned! Flat, compact design, weighs under 10 lbs.

Couple your Mark V with the new, vastly improved Narco CS/VOA Omni system and you have the luxury of instantaneous crystal-controlled tuning of any Omni station or ILS localizer. Your choice of these two panel-mounted navigation indicators, designed to meet CAA IFR requirements:

CS-3A. Panel-mounted VOR/ILS indicator with To-From, reciprocal course indication **$499**

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This is the 250-hp., 4-place Piper Comanche in which Max Conrad last month established a new world nonstop distance record of 7,668.48 miles. He grossed about 5,000 lbs. at take-off from Casablanca, Morocco, with 520 gals. of fuel aboard, and landed at Los Angeles 58 hrs. 38 mins. later with 30 gals. of fuel remaining in his tanks. More than 5,000 miles of his trip was over water.
—(Piper Aircraft Photo.)

Distance Record For Piper Comanche

Four-place Piper exceeds record held by Beechcraft Bonanza in nonstop hop

A new world distance record for lightplanes was established last month when Max Conrad, already famous for numerous transoceanic flights in small aircraft, landed a 4-place, 250-hp. Piper Comanche at Los Angeles on June 4, 58 hrs. and 38 mins. after taking off from Casablanca, Morocco. The gruelling nonstop solo hop from Africa to California had actually traversed some 8,300 miles but official distance recognized for the new record is 7,668.48 miles, which is the sum of two great circle routes, Casablanca-Trinidad and Trinidad-Los Angeles. This exceeded by 812 miles the distance record for lightplanes established last year by Pat Boling in a Beechcraft Bonanza between Manila and Pendleton, Oregon.

Conrad, long-time airline captain who has dedicated himself to generating interest among young people in personal flying, landed with 30 gals. of fuel remaining — enough for another 500 miles. Still another 500 miles of distance could have been covered in 4 hrs. of "stooging" around over the Gulf of Mexico avoiding bad weather and awaiting clearing conditions. Thus Conrad's Comanche, named "Let's Fly," was good for about 9,000 miles of nonstop distance when the world-ranging Conrad started his trip, but the odds of weather and physical stamina over such a distance were against a realization of the airplane's fullest capabilities.

Thirst was the problem that proved insurmountable for Conrad. This was ironical because Max counted on using liquids only for sustenance, rather than food. He carried only coffee and tea. But the tea became rancid. It gave him sickness instead of sustenance and this developed just when he became involved in severe weather conditions over the Gulf of Mexico. Enduring both the sickness and the ensuing throat-parching thirst became torture as the distance flier crossed Texas to El Paso and then continued on across the great deserts of the Southwest to land at Los Angeles.

Hemmed in by fuel tanks, Max Conrad flew from Africa to California by way of Trinidad. He flew from right seat.
—(Piper Aircraft Photo.)

Mechanically, the Comanche and its engine and accessories performed perfectly throughout the nearly 60 hours of continuous flying. But it required a transoceanic pilot like Conrad, who is also a highly skilled aircraft mechanic, to flight-plan the perfection with which the operation was performed. A lesser pilot could have tripped up on any one of numerous planning essentials with which Conrad became familiar on many earlier distance flights in lightplanes. If there's any place where experience counts, it's on a solo flight in an airplane carrying far more than its normal load and flown over vast ocean distances completely devoid of facili-

Special cabin tanks held 460 gals. and standard tanks in the wing carried 60 gals. when Max Conrad started his record hop with more fuel than the total of these nine 55-gal. gas drums. The Comanche consumed 485 gals. of fuel on the trip. It took off grossing 5,000 lbs., with a useful load of 3,550 lbs., nearly two and a half times its stripped-down empty weight of 1,504 lbs.

—(Piper Aircraft Photo.)

ties which could offer assistance. While the Piper Comanche, its 250-hp. Lycoming and its accessories and radio equipment had the mechanical capabilities, what counted most was the man in the cockpit.

"Let's Fly" carried an "experimental" designation but only because of the special configuration used for the trip by Conrad. It was a stock Comanche right off the production line at Lock Haven, Pennsylvania, selected at random last February. A familiar figure around the Piper factory in recent years of distance flights on which he has delivered many Pipers abroad, Conrad himself did most of the alteration work and installation of extra fuel tanks.

To lighten the airplane so that all possible fuel could be loaded into its extra tanks, Conrad removed the starter, replaced the generator with a smaller one and eliminated all possible external drag-producing items such as cowling latches, handles and the like. The Comanche's normal tanks of 60-gal. capacity were supplemented by six tanks installed in the large cabin. These extra tanks, including one which served as a seat for the pilot, added 460 gals. of fuel to the supply, bringing the total fuel load to 520 gals. It is interesting to speculate how much maximum range this offered. At 8 gals. hourly and 130 mph., this would be about 8,600 mi.

No extra oil was carried for the engine, which uses little oil, but Conrad took off with 13 quarts, being one quart over normal capacity. The Lycoming consumed only half of the oil supply during its almost 60 hours of operation on the trip, oil consumption averaging only about 1 quart every 8 hrs.

The fuel and oil Conrad carried weighed more than 1½ tons — 3,150 lbs. Thus his disposable load was far more than the Comanche's normal gross weight; indeed, fuel and oil alone weighed more than twice the airplane's empty weight, which was 1,504 lbs.

Conrad's Comanche was grossing approximately 5,000 lbs. when he took off at 1109 Greenwich time (local time in Africa at Casablanca). He had

Max Conrad's record-breaking Comanche was a production model selected at random off the assembly line, equipped with extra fuel tanks, transistorized Piper AutoControl, ARC ADF, Collins lightweight VHF transceiver and Sunair long-distance transceiver. Purpose of trip was to demonstrate mechanical integrity of business aircraft, with no malfunctioning during nearly 60 hrs. of flying.

—(Piper Aircraft Photo.)

An expert mechanic, as well as long-time transoceanic pilot, Max Conrad himself made special installations in the Comanche and is shown here on Piper production line at Lock Haven. Comanche cabin is so spacious it held all tanks necessary for extra fuel supply, eliminating need for wing-tip tanks.

—(Piper Aircraft Photo.)

experimented previously with full load, inflating the tires to 50 lbs., or double normal, and learning he could accelerate to 65 mph. in 900 ft. and reach 90 mph. in 1,600 ft. The runway had 6,000 ft. of surface and Conrad knew he could get off without difficulty; in fact, he believes he could have taken off with another 1,000 lbs. of load, grossing 6,000 lbs. For actual take-off, however, Conrad had a direct crosswind of 8 knots and was forced to take off directly over the center of Casablanca. He held it on until he had 110 mph., breaking ground after a 4,000-ft. run and going out with a rate of climb of about 500 feet per minute.

His course was from Casablanca across the Atlantic to Trinidad and thence to Corpus Christi, Texas, with a landing at El Paso or beyond. This was across 5,000 miles of water. For the first 100 miles, he had head winds but Conrad expected the wind to be less on this route than in more northern latitudes. Sure enough, the wind soon veered around to the north and provided some help. But this meant rain, and the veteran airman was to be flying in rain and turbulence just about the whole distance, which was flown at low level all the way from Africa to Trinidad, ranging from altitudes of 100 to only 2,500 ft.

Conrad couldn't have picked a more desolate expanse of ocean to navigate, for the 3,700-mile leg from Casablanca to Trinidad is one of the longest, loneliest stretches of ocean to cross, unfrequented by airlines or steamships. It is a void, without even a weather ship or navigation facilities. It was dead reckoning until he began picking up radio bearings on South American stations some 1,500 miles out.

He hit Trinidad on the nose, crossing Piarco International Airport at tree-top level 26 hrs. 39 mins. after take-off and averaging 140.8 mph. He and the Comanche were checked over the station officially by designated international observers, as required for record recognition.

On past Jamaica, Conrad encountered severe thunderstorms as darkness fell. These blanked out all communications and ADF navigation. The thunderstorm activity continued all across the Gulf of Mexico and Conrad was without communications or ADF bearings for six hours. It was not until 11:53 the next morning that he passed over Corpus Christi on the Texas coast, having spent all night in the violent thunderstorms and wasting at least 4 hours and 500 miles "stooging" around waiting for daylight and dissipation of the tropical storms.

Having used all his coffee, he had been drinking tea prepared back in Casablanca and its rancidity made him sick. Despite stomach sickness, however, Conrad crossed the Gulf of Mexico during a wild night of thunderstorms made more miserable by thirst. His throat parched even though he was flying through heavy rain squalls, with water everywhere but not a drop to drink. Conrad even attempted to catch rain water through his storm window, but found that the airstream carried all the moisture out of the cup he held outside.

Denied enough moisture to wet his mouth and throat, Conrad's lips were so dry he used the radio sparingly during the last 8 hours of his flight.

From Corpus Christi he flew on the deck across Texas to El Paso, his announced destination. But he still had fuel in his cabin tanks, plus the 60 gallons in his wing tanks, and kept going, climbing to 10,000 ft. and cool air across the deserts. He landed in Los Angeles at 2:47 p. m. local time for the drink of water he had craved for more than 30 hours and 4,000 miles.

Except for thirst, Conrad showed he was in good physical shape by submitting to interviews, calling his family in San Francisco on the telephone, and eventually climbing back into the Comanche for a 40-mile hop across to Orange County Airport at Santa Ana and a nap in a motel room. He was up again at midnight for a walk and exercise. For a man who had been piloting an airplane for nearly 60 hours, much of the time in turbulence and tropical storms, Conrad's stamina was every bit as remarkable as his airplane's mechanical integrity — a rarity on endurance flights, which are usually determined more by human frailty than by mechanical malfunction.

Conrad's Comanche was a standard AutoFlite model, factory-equipped with normal flight instruments and Piper AutoControl, a transistorized automatic flight system which he used most of the time. Radio included ARC ADF, Collins lightweight VHF transmitter and receiver and a Sunair long-distance transmitter and receiver. Conrad's only other equipment was a one-man life raft with a Simmonds Sarah rescue transmitter and a Mae West.

Averaging 130.9 mph. for his long trip, Conrad flew at lowest possible power settings, starting from Casablanca with an indicated air speed of 130 mph. and gradually reducing this speed to 100 mph. as his weight declined with fuel burn-off. The 250-hp. Lycoming didn't miss a stroke during the whole time, and a post-flight inspection showed his Champion spark plugs remarkably free from deposits despite the burning of nearly 500 gals. of 100-130-octane fuel.

Max Conrad, 56 and with 36,000 flying hours, has made so many

(Continued on page 46)

With turbofan engines and high-lift devices for short-field performance, the 584-mph. Douglas DC-9 will operate from runways now used by 300-mph. DC-6B's, bringing pure jet service in 1963 to cities larger jets can not serve. DC-9 has 94-ft. span, 103-ft. length and 34-ft. height, carries 68 to 92 passengers.

—(Douglas Aircraft Drawing.)

Douglas DC-9 For Multi-Stop Service

A Douglas jet airliner smaller than the big DC-8 and capable of serving all cities now receiving DC-6B service is being offered to the airlines for 1963 service. It is the DC-9, which will seat 68 to 92 passengers, cruise up to 584 mph. and operate from short ranges up to more than 2,500 miles.

Because it is designed to replace the DC-6B and use the same airports served by that 54-passenger piston-powered workhorse, which has been probably the most efficient airliner of the past ten years, the swept-wing DC-9 jetliner is expected to attract a large volume of orders from the airlines of the world. The larger DC-8 jetliner, and competitive jets of similar performance, require larger airports and are expected to serve only a relatively few large cities.

Short-field performance of the DC-9, designed for existing airport facilities, includes take-off runway length of less than 5,000 ft. for 68 passengers and range of 350 to 1,500 miles. This is for outside air temperature of 100 degrees F. DC-9 performance over various stage lengths with different weights is shown in the accompanying tabulation.

Several major design developments give the DC-9 its short-field performance and operating economies competitive with the piston-powered DC-6B. These include newer, more efficient fan-type jet engines and wing-leading-edge slats, or flaps, for higher lift at low speeds. The DC-9 will use the new Pratt & Whitney JTF-10A-1 turbofan engine, rated at 8,250 lbs. static thrust at sea level on a 90-deg. day. The fan-type engine utilizes extra-length blades on one of its compressor stages, these blades extending outside of the engine air inlet to by-pass some of the air around the burner section for mixing with hot exhaust gases at the tail pipe. The fan process cuts fuel consumption about 10% while increasing total thrust for a higher ratio of power to engine weight. It also makes for a quieter exhaust.

Factory details include performance for trips as short as 350 miles for the jet DC-9. The cabin has two passenger doors, one up forward with self-contained stair for rapid loading and off-loading at intermediate stops, and a second door at the rear for roll-up ramps at major terminals. Because structural landing weight is 13,000 lbs. greater than the actual landing weight while carrying a first-class payload and normal fuel reserves, the DC-9 will be capable of operating over several route segments without refueling at each stop.

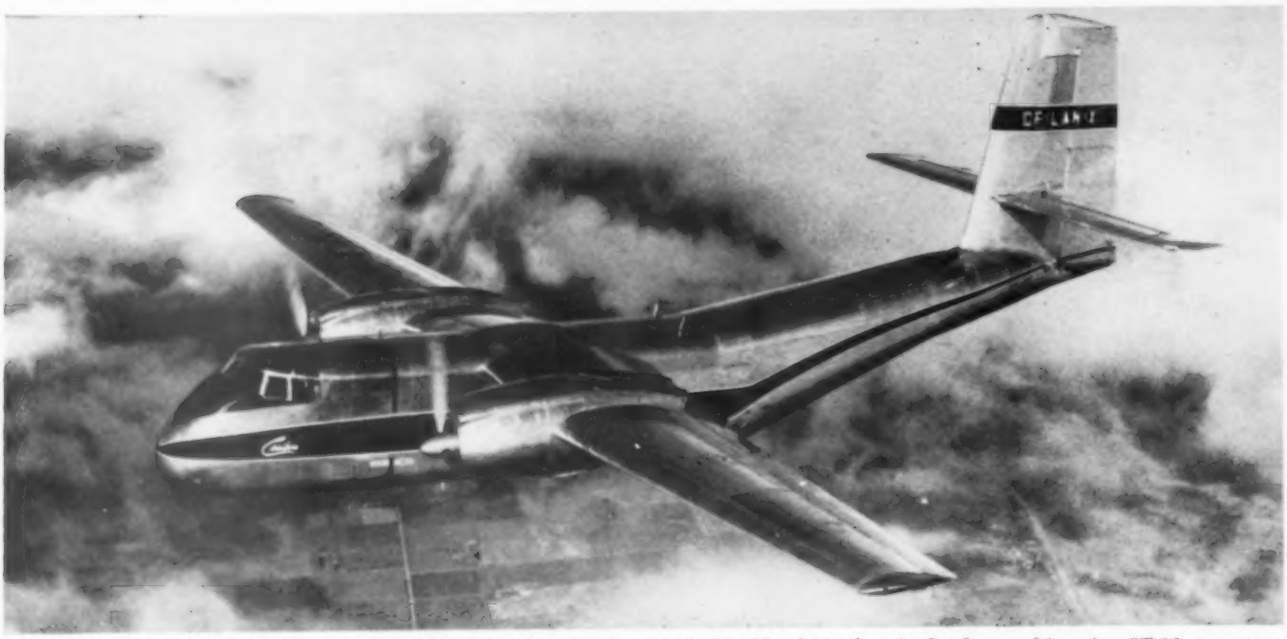
The cabin will be spacious, with 124-in. width, 81-in. headroom and 71-ft. length. It will seat four abreast for first-class 68-passenger seating and five abreast for 92-passenger coach seating.

Douglas DC-9

Factory Data

Powered by four P & W JTF-10A-1 turbo-fan jets, each rated at 8,250 lbs. static thrust (90-deg. F) for take-off.

Passenger Capacity						**68-92**
Gross Weight for take-off, lbs.						**120,000**
Landing Weight, lbs.						**98,000**
Zero Fuel Weight, lbs.						**87,000**
Payload, lbs.						**20,355**
Performance, 68 Passengers and Baggage						
Range, miles	**350**	**350**	**750**	**1,500**	**2,486**	**2,590**
Take-off Wt., lbs.	**94,300**	**93,650**	**98,200**	**107,000**	**119,330**	**119,330**
FAA Take-off Length, 100 deg. F, ft.	**4,240**	**4,180**	**4,560**	**5,425**	**6,840**	**6,840**
FAA Landing Length, ft.	**4,800**	**4,800**	**4,800**	**4,800**	**4,800**	**4,800**
Avg. Cr. Spd., mph.	**584**	**556**	**554**	**552**	**549**	**528**
Block Spd., mph.	**392**	**386**	**460**	**502**	**517**	**503**
Operating Cost, dollars per mile	**1.38**	**1.38**	**1.14**	**1.04**	**1.02**	**1.03**
Operating Cost, cents per psgr. mi.	**2.03**	**2.03**	**1.68**	**1.53**	**1.50**	**1.51**
Wing Span, ft.						**94**
Length, ft.						**103**
Height, ft.						**34**
Wing Area, sq. ft.						**1,285**



Capable of taking off or landing within only 535 ft. of turf strip, the de Havilland Caribou is the first multi-engine STOL transport. It grosses 26,000 lbs. with a 16,550-lb. basic weight for a useful load of 9,455 lbs. In ordinary winds of about 10 knots, it is usually off the ground after a run of only 300 ft.

—(de Havilland Aircraft Photo.)

DHC-4 STOL Transport

By SANDY A. F. MacDONALD

THIS is an age of high speed air transportation — giant jetliners hurtle across oceans and continents at speeds up to 600 mph. and military airplanes are nearing 2,000 mile-an-hour speeds while satellites have been clocked in outer space at speeds of 18,000 mph. The emphasis in aircraft design has always been toward greater and ever greater speed.

But now comes a revolutionary new development — the airplane that flies low and slow. While the giants of the aircraft industry strain their financial and technological resources in the highly competitive race for higher Mach numbers, another group has stumbled upon a new application for the heavier-than-air vehicle that opens up vast new possibilities. This applicability has existed all these years, but most of us have been going too fast to see it.

There are millions of people on the surface of this wrinkled old earth who have neither the wherewithal nor desire to race the speed of sound in luxury jetliners — but who still want to fly. There are still a great many more million square miles of sparsely settled areas in the world in which we live than there are densely populated areas. These undeveloped territories, and the even more plentiful rural areas, can only be served by airplanes which are capable of operating out of small fields, short landing strips, or tiny lakes and rivers. The high speed jetliner requires highly organized airways systems served by super airports with eight to ten thousand-foot runways. This champagne-flavored age of jet travel is not for Joe Blow and his Missus who live out in Birdseye Center, Indiana.

de Havilland DHC-4 Caribou

Factory Data

Power: 2 P & W R-2000-7M2 engines, each rated at 1,450 hp. at 2,700 rpm. for take-off, 1,200 hp. at 2,550 rpm. normal.

Gross Wt., lbs.	**26,000**
Basic Wt., lbs.	**16,550**
Useful Ld., lbs.	**9,450**
Fuel Cap., U. S. gals.	**770**
Oil Cap., U. S. gals.	**44**
Cr. Spd., 50% hp., 7,500 ft., mph.	**180**
Max. Range, mi.	**1,350**
Stall Spd., landing with flaps, mph.	**62**
Rate of Climb, normal hp., fpm.	**1,540**
Single-engine RC, normal hp., fpm.	**340**
Svc. Clng., ft.	**27,500**
SE Svc. Clng., ft.	**12,200**
Take-off Dist., ft.	**530**
TO Dist. over 50-ft. Obstacle, ft.	**1,020**
Landing Dist., ft.	**535**
Landing Dist. from 50 ft., ft.	**1,020**
Wing Area, sq. ft.	**912**
Wing Loading, lbs. sq. ft.	**28.5**
Pow. Loading, lbs. hp.	**8.97**

NOTE: Performance is for gross weight at sea level unless noted.

The STOL airplane requires no costly or complicated base from which to operate. It is simple and rugged in construction. It may never see the inside of a hangar from one year's end to another. The STOL airplane had its origin up in the north country. The first demand for an airplane of this kind originated with the bush pilot. He needed a seaplane capable of taking off with big loads in short distances from the many small lakes and rivers from which he was compelled to operate — a skiplane which could land short on rough ice, or haul a heavy load up out of a quagmire of soft, slushy snow.

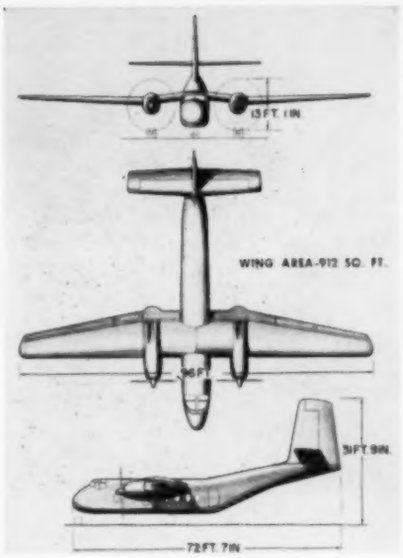
It follows that an airplane that can lift a large load off water in a short distance can lift a still larger load off a field in a still shorter distance. The de Havilland Beaver, built originally to operate from Canada's north country lake areas, fulfilled perhaps its most useful function as a landplane with the United States Army in Korea, where it was used to evacuate casualties from tiny makeshift front line strips — move men and supplies into forward battle areas. During the latter stages of the Korean War, a fleet of 50 STOL L-20's made history when they carried out an operation known as "Teenie Weenie Air Transport." The Beavers airlifted an entire regiment of combat troops over a mountain range in half a day. The same

movement would have taken 3 days to accomplish by truck convoys on the ground — assuming, of course, that the roads had not been blasted out by shellfire. This proved to be the first use of STOL airplanes as "flying trucks" to provide rapid mobility for infantry ground forces in modern warfare.

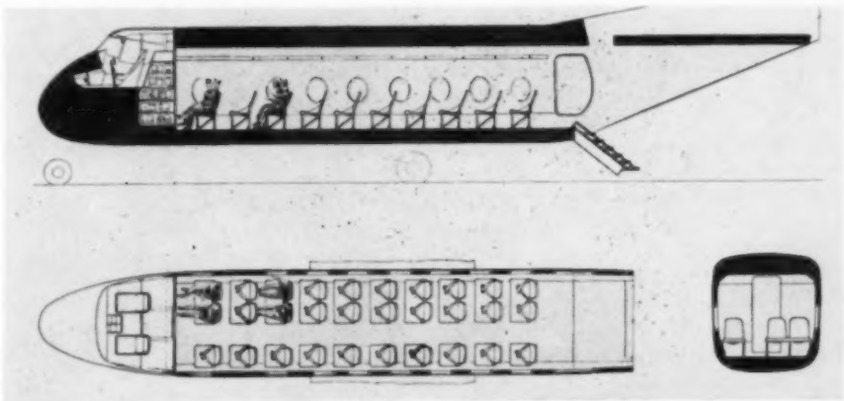
The potentialities of the STOL airplane have since become apparent to operators in many areas throughout the world. Despite dollar shortages abroad, over 1,600 Beavers and Otters with a gross value of more than 108 million dollars have been sold in over 60 different countries around the world. In Rhodesia, Central African Airways Beavers have operated daily scheduled air services out of tiny mountain landing strips which no multi-engine aircraft were capable of utilizing. Along the Magdalena River in Colombia, Aero Taxi Avianca's 15 Beavers provide a service between Bogota and Barranquilla, using short makeshift landing strips constructed alongside the villages which dot the river route. Philippine Airline's Otters serve a network of isolated villages located deep in jungle territory. As a typical example of the time and cost saving by STOL aircraft, a journey in the Philippines which takes 20 minutes and costs 9 pesos by Otter, takes 9 hours and costs 40 pesos by motor bus.

Several years ago de Havilland of Canada concluded that the local air service operators and the armies of the world were ready for a multi-engine, STOL, utility-type transport airplane — one that could haul mixed loads of passengers and cargo, go places on one engine and be able to operate out of a 5-acre field with room to spare. Original thinking came up with the idea of a "twin-engine Otter" designed around the Otter's two 600-bhp. engines, having a fixed landing gear and a gross weight of around 13,000 lbs. But when CAR-4B transport category requirements had to be realized, the poor little twin Otter died on the drawing boards. It didn't boast much more payload than its single-engine counterpart.

Successive design studies pushed the twin-engine STOL concept weight up to 22,000 lbs., to 24,000 lbs., and finally to 26,000 lbs. Power requirements escaladed from engines of 600 to 1,200 bhp., and eventually finalized in the selection of 1,450-hp. Pratt & Whitney R-2000's. These were found after two years intensive design studies to be minimum requirements for a twin-engine transport airplane that could meet CAR-4B requirements for single-engine operation and still achieve better than average operating economy.

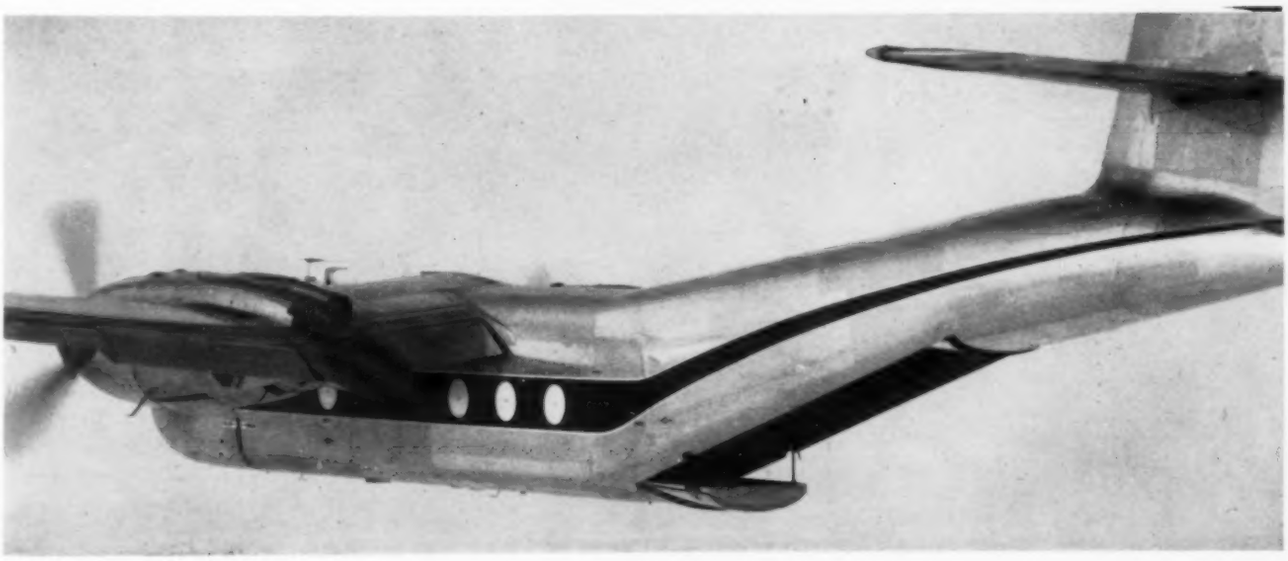


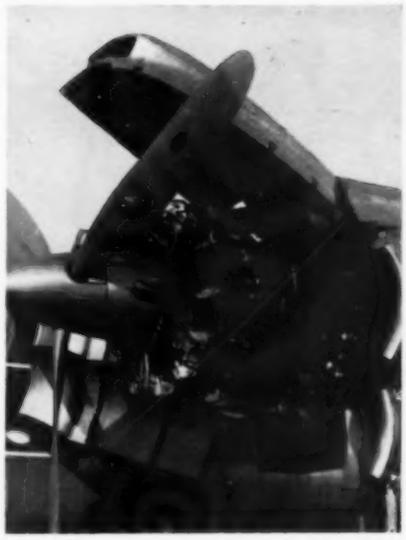
The "utility" aircraft is defined by DHC engineers as one designed to operate in undeveloped areas where airports are unknown and maintenance facilities may consist of little more than the proverbial "screwdriver, pair of pliers, and whatever you can borrow from the natives." The



Designed for passengers or cargo, and shown at right with 30 passenger seats, the Caribou features a rear loading ramp at truck-bed height and its rear doors can be opened in flight (below) for supply drop. High wing provides ground clearance for operations from unimproved strips.

—(de Havilland Aircraft Photo and Drawing.)





Two P & W R-2000 engines power the Caribou, giving it total of 2,900 hp. for take-off. Pictures here show orange-peel cowling for easy accessibility and photo at right shows exhaust system for top-of-wing augmentor tubes.

—(de Havilland Aircraft Photos.)

utility aircraft must be simple, rugged and easy to maintain under the most primitive conditions. Since the operator frequently has to build and maintain his own landing strips, emphasis on short-field performance is heavily underlined.

Short-field performance, to achieve any really useful purpose from the local air service operator's point of view, involves far more than the mere ability to get airborne and back on the ground in a minimum distance. The landing gear, for example, must be able to survive the punishment of brutal pancake landings and withstand the shocks encountered in constant rough field taxi and take-off operations. Low-speed flying ability must be outstanding, both with regard to handling and performance — the choice of sites for locating short landing strips inevitably seems to favor bowl-like depressions surrounded by steep, formidable hills.

Discussions with the U. S. Army during the exploratory period of design study on the DHC4 dictated that a large rear loading and air-drop cargo door was a "must." With this requirement, the formula for the design became pretty well resolved. The size and shape of the STOL Caribou began to take definite form.

On July 30, 1958, Chief Test Pilot George Neal taxied the finished product out for its initial test flight at Downsview and took off in a distance of less than 300 feet. The design specification take-off distance is 530 feet with zero wind, standard air, at 26,000 lbs. all-up weight. With average 9 to 11-kt. winds prevailing, however, the writer has yet to see Neal use more than 300 feet of turf runway for takeoff or landing. George has been flying STOL airplanes so long now that he's forgotten what super runways were originally built for. Pilots like George are a menace to the airport construction industry.

Original cabin capacity of the Caribou was designed for 27 civil passenger seats or 28 military wall-type troop seats. Subsequently, the fuselage was lengthened by 45 ins. and the aircraft now accommodates 30 civil passengers or 32 combat troops. The civil passenger seats are folding type and may be stowed against the wall (without removal), when cargo accommodation is required. Total cargo capacity of the aircraft is 1,150 cubic feet. The size of the loading door, 6.1 x 6.2 ft., enables a truck to back up to the rear cargo opening to discharge its load into the cabin. The ramp is adjustable to the truck tail-gate height.

At a demonstration arranged for the Canadian Army at Camp Borden, Ontario, a load of 3 tons was placed aboard the aircraft by two army trucks, doors secured, and subsequently off-loaded. The complete cycle of backing the trucks to the aircraft, unloading, re-loading and moving off was completed in exactly 5 minutes. Short turn-around time is an important factor all too often overlooked in cost studies. For short-stage distances, say 200 miles, it is an established fact that a moderate saving in turn-around time is equivalent to a remarkable increase in cruising speed. Hence, the airplane with the biggest work capacity is not necessarily the airplane with the highest cruise speed.

A STOL landing over obstacles is possible only with a steep approach and no flare. This sometimes requires a pilot with fortitude and a landing gear with a healthy capacity for energy absorption. The Caribou gear is designed for a vertical component of velocity of 14 ft./sec. The long-stroke leg which accomplishes this remarkable shock absorption would provide a rather "spongy" platform for loading and taxiing. So Jarry Hydraulics overcame this problem rather ingeniously by designing a "two-stage" shock strut for the Caribou which provides a short travel for small energy displacements encountered during ground operation and a long travel for heavy landings. (The Caribou approach speed is 70 kts. and touchdown speed 52 kts. Ground roll is 525 feet, zero wind).

During an accelerated test flying program at Downsview the Caribou was flown around the clock for 7 days during which a total of 100 hours less 15 minutes was logged. Flying VFR and Special VFR, an average of 14 hours 15 minutes per day was achieved. During this period a high degree of reliability was maintained with indications that maintenance hours on the Caribou should be appreciably low.

The Caribou is a twin-engine STOL utility airplane designed to operate from short, improvised airstrips at maximum gross load. It is adaptable to local air service carriers' needs in a variety of roles such as passenger accommodation for thirty, up to 3½ tons of cargo, or as a mixed-load transport. The DHC-4 combines the pioneering capabilities of the rugged bush airplane with competitive standards of comfort and cost for medium stage operations, permitting economical fleet standardization.

In the cargo configuration, the C-4's wide rear doors, sharply upswept tail assembly and truck-level floor facilitate the loading and unloading of cargo. In flight, these same features permit easy air-drop operations. On the ground, rear loading ramps permit two jeeps to be driven directly into the 1,150-cubic-foot cabin.

The aircraft introduces a new concept in transport aircraft design. STOL ability enables the Caribou to operate from tiny jungle landing strips, from beachheads or from short fields close in to centers of population — it ushers in a new era of low cost "air-bus" operation.

New $500,000 facilities for Air-Oasis, Cessna distributor on Long Beach Airport in California, include large showroom (below) opened recently with fashion show. Bottom photo shows patio area of modern sales and service center.

Air Sales Hot Spot

A new $500,000 facility for business aircraft sales and service, most modern of its kind in the nation, has been formally opened at Long Beach, California, by Air-Oasis Company, world's largest distributor for Cessna Aircraft Company.

The modernistic new headquarters for Air-Oasis includes a display room large enough for four airplanes, sales and executive offices, conference rooms for visiting businessmen, lounge for pilots, complete repair facilities for all types of aircraft including airline-type transports, and a parts department with complete inventory.

Larry W. Hunt, president of Air-Oasis, said the new aircraft sales and service center will become the busiest business aircraft terminal in the Los

(Continued on page 46)

Larry Hunt (left), head of Air-Oasis and Cessna's largest distributor, was assisted in opening new center by Dwane Wallace (right), president of Cessna.

Some of the private and corporate aircraft which participated in Reading Aviation Service's 10th annual maintenance and operations meeting and aircraft judging are shown grouped around the display hangar at Reading, Pennsylvania.

—(Reading Aviation Service Photo.)

Turboprops At Reading

NEARLY 500 visiting aircraft and about 5,000 pilots, aircraft owners and tradesmen flocked to Reading, Pennsylvania, last month for the 10th annual maintenance and operations meeting and judging of business aircraft for awards, with Reading Aviation Service as the host.

This show has become an institution in business flying under the farsighted guidance of RAS. Interest is spotlighted on judging of airplanes with awards going to owners of those selected as the most outstanding for their equip-

Industry exhibits included many new aircraft for business. This is Grumman's new propjet Gulfstream which numerous corporations have ordered, the first being delivered last month to Sinclair Refining of Tulsa.

—(Reading Aviation Service Photo.)

Flagship of the American industrial air fleet is the turboprop Fairchild F-27 of Westinghouse Electric, shown at right with a 1929 Fairchild KR34 Challenger, which was among antique aircraft displayed. Sime Bertolet, RAS president, is pictured above with Curley Korb, chief pilot for Westinghouse Electric.

ment, interiors, exteriors and general excellent condition. But Alfred (Sime) Bertolet, president of RAS, stresses that the main idea is to bring together manufacturers, distributors and dealers with aircraft owners and pilots for the graphic introduction and presentation of new ideas, advancements and techniques in general aviation. Exhibitors at the affair, conducted on two days this year, represented many facets of general aviation equipment with booths and displays.

For the first time, private turboprop aircraft and their equipment took part in the show. Indeed, a turbine-powered Fairchild F-27 owned by Westinghouse Electric walked off with top honors when the judges selected it as the "flagship of the American industrial air fleet." Gulf Oil's new Executive Aircraft Service Gulfstar conversion of the Lockheed Lodestar was runner-up for the top award.

There was a full program of discussions by authorities on many subjects. New concepts of weather forecasting were discussed by John Wooley and Norman F. Lacey of the National Weather Forecasting Corp.; Dave Kratz of National Insurance Underwriters discussed accident prevention; Art Graham, managing editor of "Sky-

Many makes and models of business aircraft made the beautiful Reading airport a giant showcase of general aviation at the show. This scene shows a cocktail party for pilots and tradesmen during the two-day program.

—(Reading Aviation Service Photo.)

ways" magazine, discussed terminal air traffic control; air space use was discussed by Vic Kane of AOPA, and flying multi-engine aircraft was discussed by John Paul Jones, FAA chief of flight test. United Air Lines conducted a radar school with 50 students taking part.

Winners in the aircraft judging were as follows:

Flagship of the American Industrial Fleet — Fairchild F-27, Westinghouse Electric Corp. Honorable mention — Lockheed Gulfstar, Gulf Oil Co.

Twins Over 12,500 lbs.

Best exterior — Lockheed Gulfstar, Gulf Oil Co.; honorable mention — Learstar, Island Creek Coal Co. *Best interior* — Fairchild F-27, Noland Co.; honorable mention — Fairchild F-27, Westinghouse Electric. *Best equipment and instrumentation* — Learstar, Island Creek Coal Co.; honorable mention — Convair 440, Swiftflite Corp.

Twins 5,000-12,500 lbs.

Best of class — Beech E-18, H. L. Coble Construction Co. *Best exterior* — Beech C-45G, Brockway Glass Co.; honorable mention — Virginia Coal & Iron, H. L. Coble Construction and H. R. Miller. *Best interior* — Beech E-18, H. L. Coble Construction; honorable mention — Beech C-45G, Brockway Glass. *Best equipment and instrumentation* — Beech E-18, H. L. Coble Construction; honorable mention — 680 Aero Commander, Sutter Lumber Co. *Honorable mention for a modernized aircraft* — Beech C-45G, Brockway Glass.

Twins Under 5,000 lbs.

Best of class — Cessna 310, New York Wire Cloth Co.; honorable mention — Beech Travel Air, Richard D. Clemson. *Best exterior* — Cessna 310, N. Y. Wire Cloth. *Best interior* — Piper Apache, Dr. William Prescott. *Best equipment and instrumentation* — Beech Travel Air, Richard D. Clemson.

Single-Engine Aircraft

Best of class — North American F-51D, Fred Johnson; honorable mention — Piper Comanche, Jesse P. Long. *Best Exterior* — Cessna 170B, Richard E. Brown. *Best interior* — F-51D, Fred Johnson. *Best equipment and instrumentation* — Piper Comanche, Jesse P. Long.

Antique Aircraft

Oldest aircraft — Waco 10, Robert Hoover. *Best original condition aircraft* — Stinson S, Chuck O'Conner. Honorable mention — Fairchild KR34, Charles Kulp.

Show pieces at Reading include: Top, Kellett Aircraft's autogiro, now on the market again as an improved version of the pre-war autogiros perfected by Kellett. Center, Fred Johnson's beautiful North American F-51D, selected as best of single-engine aircraft in the judging. Bottom left, one of many industry booths which displayed new products for aircraft. Below, a 3-place Hiller helicopter being demonstrated to business pilots, some of whom include copters in their fleets.

—(Reading Aviation Service Photos.)

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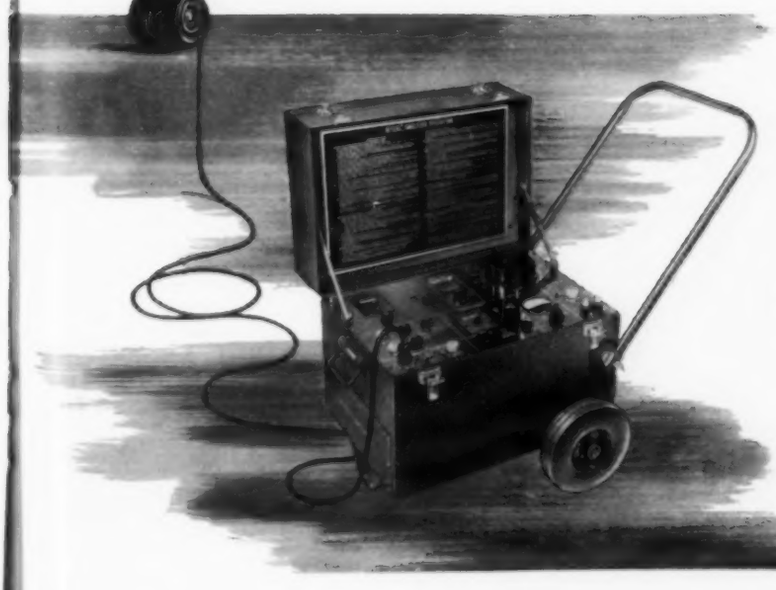

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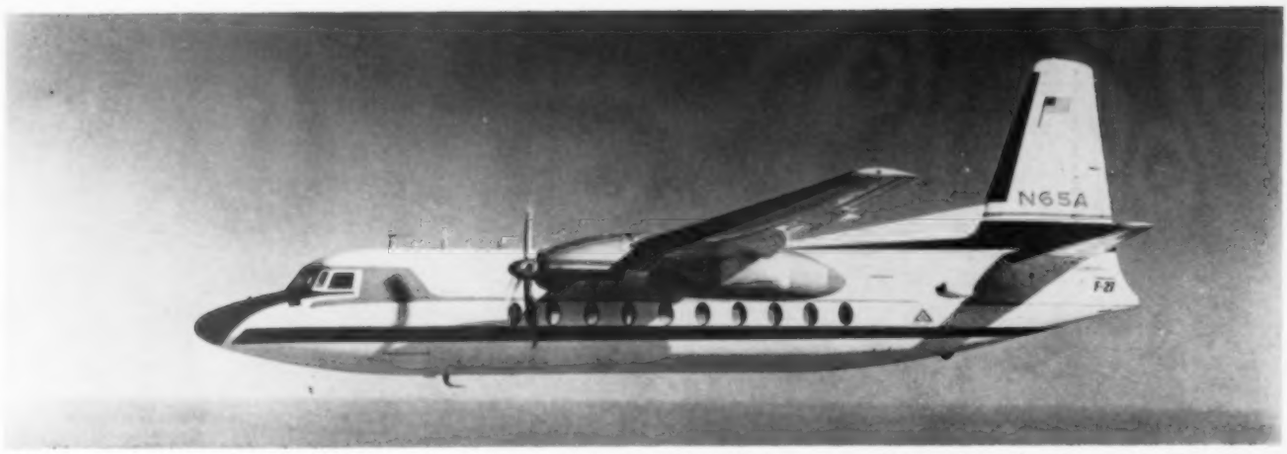


This F-27 is owned by the Noland Company of Newport News, Virginia, which operates 480 trucks and autos on the East Coast.

F-27 Busy In Exec Fleet

OF 21 corporations ordering turboprop Fairchild F-27's, 13 have received delivery and are flying the 270-300-mph. pressurized transport. Two of them won honors in aircraft judging at the 10th annual Reading show last month.

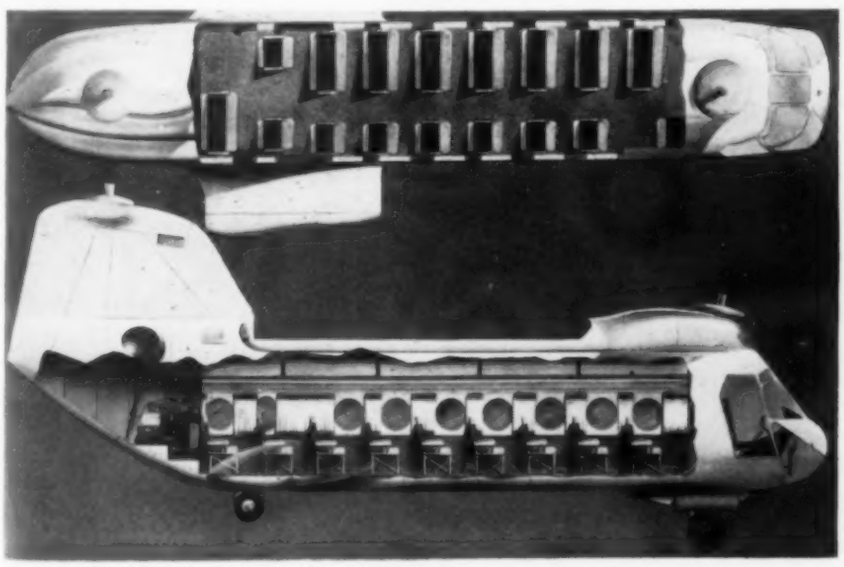
Prize winners were Westinghouse Electric's F-27, selected as flagship of the American business air fleet, and the Noland Company's F-27 was picked for having the best interior among large twins. Horton & Horton of Ft. Worth designed and installed the Westinghouse interior and Noland's interior was designed by Dave Ellies of Columbus, Ohio, and installed by Piedmont Aviation of Winston-Salem.

Fairchild prices the F-27 at $635,000 with 1,720-hp. Rolls-Royce Dart RDa-6 turbines and the F-27A at $695,000 with 2,105-hp. RDa-7 Darts. The F-27A cruises at 300 mph., has 2,115-mile range with reserve, climbs 1,920 fpm. and 620 fpm. on one engine, can operate from runways of less than 3,600 ft., and stalls at 78 mph.

Westinghouse Electric's chief pilot, A. C. Korb, is shown at left (center) with Landis Carr (left) of Fairchild and Bill Horton, the interior specialist, at Reading show. Below is the Bank of Mexico's F-27. At right is the Westinghouse F-27's Horton interior.

Vertol Model 107 tandem-rotor helicopter transport is powered by two General Electric T-58 turbines installed near the tail and shafted to both rotors. It has 150-mph. cruising speed, 7,200-lb. payload at 18,400 lb. gross weight and was demonstrated in Europe during June and July. Three-blade rotors have 50-ft. diameter.

Sealed hull of Vertol 107 enables it to operate on water for amphibious capability. Lateral water stability is provided by tip fairings on landing gear support structures. Configuration of the high tail rotor makes possibe flare or "dead stop" landings in water. Sketch below shows compact DC-3-type airline seating arrangement for 24 passengers.



Vertol 107 Helicopter Airliner

DESCRIBED as the most advanced helicopter now flying, the new twin-turbine-powered Vertol 107 transport helicopter is turning in impressive performance during demonstrations by Vertol Aircraft Corporation. It will be in commercial production during 1960 with standard airline seating for 24 passengers and is expected to make a forceful impact on inter-city travel.

Don R. Berlin, president of Vertol, emphasizing that the design is directed to the airlines for greater helicopter safety, economy and passenger comfort, said the Vertol 107 offers 50% more cruising speed, 60% more seating capacity and 40% lower operating cost than current helicopters in airline operation. Its twin turbines provide day and night instrument flying capability and it features an amphibious hull for water operations capability, these meeting safety needs for operating from city centers.

Vertol's demonstrator is powered by two General Electric T-58 shaft turbines which give it a cruising speed of 150 mph. It was first demonstrated in Philadelphia, where it operated between the city centers of Philadelphia and New York in only 37 minutes for the 82 miles. Airline time between the two city centers, including ground time for airport travel, is about 90 minutes. In June the 107 was taken to France where it

(Continued on page 50)

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Piper has established a world-wide network of Factory-Certified Service Centers to assure you of the finest service possible for your Piper airplane.
To earn the coveted designation, service organizations must meet rigid requirements, must be properly equipped and staffed by personnel who have attended the intensive service school conducted at the Piper plant.
Dozens of Piper Factory-Certified Service Centers have been established throughout the nation and around the world, and more are being designated to assure convenient and competent Piper service wherever you may wish to fly.

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BROWNING AERIAL SERVICE
Municipal Airport
P. O. Box 1173
HOmstead 5-1728
Austin, Texas

DELAWARE AVIATION CORPORATION
North Philadelphia Airport
HObart 4-1600, *TWX PH* 520
Philadelphia 36, Pennsylvania

DES MOINES FLYING SERVICE, INC.
Municipal Airport
ATlantic 8-2218
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ELLIOTT FLYING SERVICE, INC.
Davenport Municipal Airport
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Davenport, Iowa

EXECUTIVE AIRMOTIVE, INCORPORATED
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GArfield 8-3581, *GArfield* 2-7277
Parkersburg, West Virginia

J & J AIRCRAFT, INC.
Sarasota-Bradenton Airport
821 *General Arnold Road*
ELgin 5-6868
Sarasota, Florida

KEN-MAR AIRPARK, INC.
Ken-Mar Airpark
Box 2667, *University Station*
MUrray 3-6589
Wichita, Kansas

PIEDMONT AVIATION, INC.
Smith Reynolds Airport
PArk 5-0511
Winston-Salem, North Carolina

RED AIRCRAFT SERVICE, INC.
Broward County International Airport, Building 78
JAckson 3-9624
Fort Lauderdale, Florida

SPARTAN AIRCRAFT COMPANY
Aviation Service Division
Tulsa Municipal Airport
TEmple 5-4491
Tulsa, Oklahoma

ST. LOUIS FLYING SERVICE
Lambert Muncipal Airport
Box 6067, *Lambert Field Station*
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NO NEED TO LEAVE FRIENDS BEHIND...

TAKE THEM WITH YOU IN A FAST, MODERN

PIPER *Caribbean*

AMERICA'S LOWEST-COST FOUR-PLACE AIRPLANE

Why not trade your present maintenance-greedy two-passenger airplane for a sleek, new, over 130 mph Piper Caribbean? Here's an airplane you'll go anywhere in with confidence, economy and peace of mind—and, with its roomy four-place cabin *plus* lots of baggage space, you can share your flying fun with friends.

At $8,395 the Caribbean costs little more than new two-place airplanes, yet offers you so much more speed, utility and pleasure. Your Piper dealer is in a trading mood, and easy finance plans are available. See him today, or write for the Caribbean brochure, Dept. F-7.

$8,395

ONLY $2,098 DOWN

MONTHLY PAYMENTS AS LOW AS $230

OPERATORS

Here's Your Best Money-Making Airplane!

Operators all over the country are singing the praises of the Caribbean. They like the reliability and rugged, long-operating life of the 150 hp Lycoming engine. For student work it operates nicely at 6 gallons per hour (80 oct.). Tricycle gear... simplified, inter-connected controls... famous forgiving Piper flight safety features, protect their investment. And the four-place feature makes the airplane useful for charter, air taxi, or freight, as well.

The Caribbean on your flight line will be a sure money-maker for you—a versatile, all-around airplane. And it's a known fact that clean, new equipment attracts more business.

Ideal for FLYING CLUBS, too!

PIPER AIRCRAFT CORPORATION, LOCK HAVEN, PA.

MORE PEOPLE HAVE BOUGHT PIPERS THAN ANY OTHER PLANE IN THE WORLD

With 300-hp. Lycoming radial engines and 3-blade Hartzell propellers, the 6-passenger Gannet grosses 5,500 lbs. and will get out of water in only 10 seconds. Note one-piece panorama windshield.

Gannet Version of Widgeon

LATEST of numerous modernized versions of the Grumman Widgeon is the "Gannet," developed by Pacific Aircraft Engineering Corporation and now in production at Burbank, California. It is a six-passenger amphibian offering a top speed of 190 mph. and a range of 1,000 miles, priced at $89,950.

Licensed at present for a gross weight of 5,500 lbs., the Gannet has a 1,700-lb. useful load and is powered by two 300-hp. radial Lycoming R-680 engines driving Hartzell full-feathering 3-blade propellers. The engines have full pressure cowlings with top-of-wing exhaust augmentors.

At gross weight, it will get off the water in 10 seconds, climb 1,850 feet per minute, cruise at 170 mph. using 66% power at 8,000 ft., and has an 8,000-ft. single-engine ceiling. Landing speed is 62 mph. with power off. The Gannet has a fuel capacity of 158 gals.

Charles H. Harris, vice president and general manager of Pacific Aircraft Engineering, said the Gannet is being produced on a schedule of fifteen amphibians from zero-time Scan-30 Widgeons. He is also equipped to modernize existing Widgeons to the Gannet configuration in 30 days.

Modifications include airframe and landing gear reinforcement, installation of five major watertight compartments, two longitudinal steps in the hull, new wheel up-lock mechanism, escape hatch and new hydraulic and electrical systems. Wings are metal covered and flush riveted. Twenty-five-gallon auxiliary fuel tanks and landing lights are located in each wing. The engine firewall is of titanium. A special corrosion-resistant treatment is given the entire airframe. New bubble windows and super soundproofing make for a very quiet cabin. A new one-piece panoramic windshield is featured.

The electrical system is completely new, including 50-amp generator with booster coil for cold, wet starts.

The entire wing trailing edge has been removed and replaced with new ribs. Hull, fuselage, wings and landing gear are stressed for a 6,000-lb. gross weight although the present license is for 5,500 lbs.

Engine improvements include straight-through push rod housings

(Continued on page 65)

QUEENY SUPER CATALINA IS WORLD'S ONLY O4B AMPHIBIAN, qualifying for airline safety requirements in category of Martin and Convair types. Three more Super Catalinas are being converted by Timmins Aviation at Montreal. Conversion belongs to Edgar Monsanto Queeny, chairman of Monsanto Chemical. With 8.5 sq. ft. added to tail plane and Wright R-2600 engines, it cruises at 187 mph. on 53% power and grosses 34,000 lbs. with an increase of 3,000 lbs. in disposable load. Single-engine ceiling is 12,500 ft. and range is 2,500 miles. Timmins offers the conversion package at $85,000 per airplane.

Announcing the sale of

MORE PAYLOAD PER DOLLAR

than any other licensed cargo aircraft.

For many years the C-46 has been an economically operated, hard working performer for the United States Air Force. Now private operators, such as yourself, are being given the opportunity to purchase these aircraft and take advantage of their high-profit capabilities.

CREDIT TERMS AVAILABLE

The General Services Administration has arranged to make credit terms available to qualified, domestic buyers. Requirements include: basing the aircraft within the United States, Puerto Rico, or the Virgin Islands until full payment has been made; minimum down payment of 25% of the purchase price; payment of the balance in 36 equal monthly payments with interest at 5% on the unpaid balance. You will be furnished detailed credit information upon request of the sales catalog.

INSPECTION: 10-18 AUGUST

The models offered for sale are the C-46A and C-46D. These aircraft are adaptable for both freight and passenger use. The C-46 is eligible for Federal Aviation Agency "Type Certification" in "Normal" and "Transport" categories upon completion of necessary modifications.

PRICE RANGE: $50,000 - $60,000

The prices of the 110 C-46's to be offered for sale are $50,000, $55,000 or $60,000 depending on the condition of the individual aircraft. The sale will be conducted on a "first come—first served" basis. Should the occasion arise when two or more buyers simultaneously attempt to purchase the same aircraft, lots will be drawn and service provided in the resulting numerical order. Aircraft records will be available for your use during the inspection period.

SALE BEGINS: 19 AUGUST

ALSO . . . B-26 FIXED PRICE SALE

Inspection: 10-18 August Sale begins: 19 August
Price Range: $1,500 - $5,000
No Credit Available

Arizona Aircraft Storage Branch
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Tucson, Arizona

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Dear Sir:

Please send me a copy of the Sales Catalog for the sale of

☐ C-46 Aircraft ☐ B-26 Aircraft

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RECORD DISTANCE FLIGHT

(Continued from page 30)

long-distance and over-ocean flights in lightplanes it is difficult to count them, much less the miles and hours involved. But his greatest flight of all proved to be his most efficient. Says Max: "I have never made a long-distance flight before where everything worked so perfectly 100% of the time."

That's a remarkable tribute to his Piper Comanche, its Lycoming engine and other equipment. For the record, here is a summation of the facts and figures of the Conrad flight — greatest solo distance flight in aviation history:

Actual Distance, mi.	8,300
Total time, hrs.-mins.	58-38
Avg. Spd., mph.	142
Tot. Over-Water Dist., mi.	5,000
Fuel Consumed, gals.	485
Fuel Consumption, gph.	8.3
Oil Consumed, qts.	7
Cost of Fuel and Oil Used	$191.20
Aircraft Gr. Wt., lbs.	5,000
Empty Wt., less tanks, lbs.	1,504
Useful Ld., lbs.	3,496
Fuel Cap., gals.	520

NOTE: Actual distance flown was 8,300 miles at average of 142 mph., with a fuel consumption of 8.3 gals. hourly or 17.1 miles per gal. However, FAI official distance, which is the shortest between take-off and landing as measured by Great Circles through Trinidad, was 7,668.48 miles, dropping average speed to 130.9 mph. or 15.7 miles per gal.

Airmen's Calendar

July 19—Annual Dawn Patrol Breakfast and Events, Haines Airport, Three Rivers, Mich.

July 26—Oregon Centennial Air Circus and Jaycee Air Fair, Hillsboro, Oregon.

July 28-31—Association of Local and Territorial Airlines Quarterly Regional Meeting, Anchorage and Fairbanks, Alaska.

Aug. 8-13—7th Annual Jaycee Air Cruise, Las Vegas-Philadelphia.

Aug. 15-16—3rd Annual Maine Air Fair, Municipal Airport, Auburn, Maine.

Aug. 31-Sept. 2—Annual Army-Navy Instrumentation Program Symposium, Statler Hilton Hotel, Dallas.

Sept. 3-6—Air Force Association National Convention and Aerospace Panorama, Exhibition Hall, Miami.

Sept. 7-13—Annual Farnborough Flying Display and Exhibition, Society of British Aircraft Constructors, Farnborough, England.

Sept. 8-11—2nd Annual Flyng Physicians Clinical Session, Western Hills Lodge, Sequoyah State Park, Wagoner Okla.

Sept. 23-24—Airwork Corp. Engine and Operations Symposium, Millville, N. J.

Sept. 30-Oct. 3—23rd Annual International Northwest Aviation Council Convention, Multnomah Hotel, Portland, Ore.

Sept. 30-Oct. 2—13th Annual Meeting, Southeast Airport Managers Association, Washington-Drake Hotel, Durham, N. C.

Oct. 6-8—12th Annual National Business Aircraft Association Meeting, Hotel Leamington, Minneapolis.

Oct. 6-8—1959 National Airport Conference, University of Oklahoma, Norman, Okla.

Oct. 7-10—4th National Meeting, Air Traffic Control Association, Biltmore Hotel, Oklahoma City.

FOR 25 YEARS OF SERVICE TO CESSNA AIRCRAFT COMPANY, Thomas B. Salter (center), vice president of engineering, was honored recently by the firm's chief engineers. Tom Salter joined Cessna in 1934 and has been largely responsible for the enginering and development of Cessna's commercial and military aircraft since then. Left to right in the picture are Charles Seibel, chief helicopter engineer; H. F. Waring, chief military aircraft engineer; Salter; Burt Whitlock, chief industrial products engineer, and J. H. Gerteis, chief commercial aircraft engineer.

—(Cessna Aircraft Photo.)

AIR SALES HOT SPOT

(Continued from page 35)

Angeles area. It is located on the Long Beach Airport and employs 73 personnel, with an expanding payroll that is expected to reach a million dollars annually within a year.

Air-Oasis has been the leading distributor of the Cessna Aircraft Company since 1952. Its territory is Southern and Central California.

The new facility is open 24 hours daily not only with all types of fuel including turbine fuel but with round-the-clock operation of its service department including a fully Federal Aviation Agency-approved repair station. Continued growth of business flying justifies this type of service facility, Hunt says, and Air-Oasis believes it is essential if his customers are to obtain full utilization of their aircraft.

Norris

Sales manager for Air-Oasis Co. is Bill Norris, former division sales manager for Cessna Aircraft Company at Wichita. Norris moved to Long Beach two years ago to join Air-Oasis in its sales organization.

Dal-Tex Elects Evans

Dal-Tex Aviation, Addison Airport, Dallas, world's largest Cessna dealer in number of airplanes sold, has elected Emmett H. (Zeke) Evans, sales manager, as a vice president. The dealership is headed by Eldon Bloyd, formerly with American Airlines and Central Air Lines and was engaged in Aero Commander and Piper sales.

Bloyd

Evans

Dal-Tex has started construction on a new 15,000-sq. ft. airplane sales display area adjacent to its showroom and hangar on Addison Airport. The new 75 by 200-ft. concrete ramp will eventually be covered as an automobile-type showroom for airplanes.

"TAKE THE HIGH ROAD TO DALLAS"

ADDISON AIRPORT

Addison Airport is the safe, new, economical and convenient airport for business, executive and private aircraft operators in the Dallas area, whether they be based in the area or transient. Addison is the nation's largest privately owned and operated executive airport.

Addison has complete facilities offering the flyer every necessity and every luxury. It is conveniently located to Dallas yet at a distance to provide complete safety of operation.

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distributors for
AERO COMMANDER and LYCOMING

Providing complete service and maintenance on all AERO COMMANDER models. Full line of aircraft parts and accessories. Immediate off-the-shelf shipment of LYCOMING engines and parts.

AD 9-2618—ADDISON AIRPORT
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2 J. R. GRAY Company, Inc.
Authorized BEECHCRAFT distributor

FOUR FAST, QUIET, RUGGED MODELS
Bonanza—4 or 5 Place
—200 mph. Cruise
Travel Air—4 or 5 Place
—200 mph. Cruise
Twin-Bonanza—7 Place
Fuel Injection Engines
Super E18S — 7 to 11 Place—215 mph. Cruise
Leasing - Financing Available
Call William B. Dever

AD 9-2562—ADDISON AIRPORT
Dallas

3 AIRPORT RESTAURANT
Specializing in Fine Food

Enjoy tasty flight lunches at our new modern restaurant located in the terminal building at Addison Airport. You will appreciate our excellent food and courteous service. Flight box lunches prepared on request.

Open 7 days a week.

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4 DAL-TEX AVIATION, INC.
offering a full line of
CESSNA AIRCRAFT

Visit our modern sales show room for the best in new and used aircraft values. Businessmen's flight training, charter, complete electronic service and maintenance shop capable of airworthiness certification supported by genuine CESSNA parts and a full line of accessories.

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ATLANTIC AVIATION CORP.
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  Teterboro, New Jersey
- Logan International Airport
  East Boston, Massachusetts
- International Airport
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Put Your BEECHCRAFT in BEECHCRAFT Hands

". . . and I never knew the Travel Air could be such a miser on fuel!"

Executive Pilots:

See how it feels to cruise at 200 mph in quiet quieter than your family car:

In this 200 mph Beechcraft Travel Air you actually hear less noise in flight than you do in a car at 60 with the windows open! It's the world's quietest executive airplane. But don't just take our word for it. There's a standing invitation at your Beechcraft distributor's or dealer's for you to actually fly this new Travel Air yourself. And while you're putting it through its paces, you'll discover a number of reasons why, in just one short year, the Travel Air has won the hearts of so many "big twin" pilots. Here are just a few:

1. It's fast – cruises at 200 mph with only 75% power. Top speed of 210 mph.

2. Outstanding "short field" performance – clears ground in only 850 feet. Stops 590 feet from touchdown after landing.

3. Climbs at 1,360 feet per minute – fully loaded.

4. High service ceiling of 19,300 feet.

5. Extra low operating cost – can fly 1,410 miles on 112 gallons of fuel. That's better than 12½ miles per gallon!

6. Tested to strengths at least 39% above CAA requirements – most rugged business plane in its class.

7. New instrument panel design – groups all radio equipment on the left side.

Whether you're moving up to a twin, or trading in a twin, see and fly the new 1959 Travel Air. No twin is easier to fly—easier to own. Ask your Beechcraft distributor or dealer about low-cost financing and leasing plans, or write Public Relations Dept., Beech Aircraft Corp., Wichita 1, Kansas, U. S. A.

SUPER 18 TWIN-BONANZA BONANZA TRAVEL AIR MS 760 JET

Beechcraft

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

Full-scale display mockup of tri-turbine Sikorsky S-51 carries banner of Chicago Helicopter Airways, which has ordered three of the 25-passenger rotary-wing airliners with first delivery in 1961. Float gear and sealed hull give it amphibious capability.

—(Sikorsky Photo.)

As long as a football field, this giant tandem-rotor copter is proposed by Bell Helicopter Corporation as a vehicle for developing and testing nuclear aircraft power plants. It would weigh 500,000 lbs., cruise over 200 mph. and stay aloft for long periods without refueling. Bell says research helicopter would be more practical for nuclear engine tests than fixed-wing airplane.

—(Bell Helicopter Photo.)

NEWEST MID-TOWN COMMERCIAL HELIPORT is this large facility in London, England, utilizing the shore of the River Thames at Battersea. A private venture of the manufacturers of the Westland helicopter, it is open to private helicopter owners as well as commercial firms. Note separation of landing area from service area.

—(British Information Services Photo.)

VERTOL MODEL 107

(Continued from page 41)

appeared at the Paris Air Show. From there it was to visit Belgium, Denmark, Germany, the Netherlands, Sweden and England.

The demonstrator has a 7,200-lb. payload at a gross weight of 18,400 lbs. A compact transport, its cabin is 24 ft. 2 ins. long, 72 ins. high, 79 ins. wide and has a volume of 920 cu. ft. Exterior dimensions are 44 ft. 7 ins. for length, 16 ft. 10 ins. for height and 50-ft. diameter 3-blade rotors.

In addition to its 150-mph. cruising speed, performance includes 750-fpm. vertical rate of climb, 1,650-fpm. forward rate of climb, hovering ceiling of 7,000-8,500 ft. and service ceiling of 13,500 ft.

The Vertol 107's sharp superiority over current piston-powered helicopter transports derives chiefly from the use of turbine power. Its free-shaft engines provide the compactness and power needed to double the ton-mile-hour capability of existing copters. These engines deliver 3 hp. per pound of weight and are small and lightweight enough for convenient installation.

Low Cost Copter Trainer

The small helicopter ground trainer pictured below is a German innovation — the new Vollkomer, which cost only $1,700 to fabricate and has a 37-hp. engine which uses only about 6 quarts of fuel per hour. Built by an automotive manufacturer in Munich, it was developed by the Otto Rietdorf Helicopter School at Koblenz. Seated in it is Lt. Col. C. H. Ellis, Jr., commander of the 8th Transport Aircraft Battalion. He is receiving instruction from Karl Kuntz, the school's chief test pilot. After about 12 hrs. of instruction in the Vollkomer, students solo the Bell Model 47 in their first hour of dual instruction. The Vollkomer is also used as an instrument simulator.

CHA Orders Sikorsky Turboliners

THREE 25-passenger, turbine Sikorsky S-61 transport helicopters have been ordered by Chicago Helicopter Airways. The S-61 was announced recently and CHA last month became the first of the world's four scheduled helicopter airlines to indicate intention to purchase the turbine Sikorsky. The first CHA S-61 will fly in 1960 and delivery to Chicago is scheduled for early 1961.

Powered by three General Electric T-58-6 turbines, the S-61 will cruise at more than 150 mph. and will carry twice as many passengers as the single-engine piston-powered helicopters now used by CHA and other copter carriers.

Engine-out performance and a sealed hull for amphibious operations make the S-61 an all-weather, round-the-clock transport. Its 25-passenger cabin gives it DC-3 passenger-carrying capabilities for city center operations.

Atomic-Powered Helicopter?

LARGEST helicopter yet proposed is a research vehicle with atomic power plant — a drawing board project studied by Bell Helicopter Corp. in cooperation with the Air Force. There is no present plan to build such a giant machine, but feasibility studies called for a fuselage 300 ft. long and a gross weight of 500,000 lbs.

Bell's idea is that a helicopter test of nuclear power plants would be easier to develop than a high-speed fixed-wing airplane project for nuclear engine tests. Power plant and reactor shielding requirements would be considerably less and lower power requirements would allow designers more freedom in selection of reactor materials and working fluid of the engine.

Development of the nuclear-powered helicopter would eliminate the need for big, vulnerable air bases with long runways. For this reason alone it would be desirable to provide vertical take-off and landing capability for all nuclear-powered aircraft, a Bell spokesman said.

Tennessee Uses Bells

With three Bell 47G-2 copters, the Tennessee Safety Department can reach even the most remote section of the state in less than 90 mins. One of them is pictured at right with a squad car. Chief pilot for the helicopter unit is Highway Patrol Captain Truman G. Clark. "No other machine will perform many of the helicopter's tasks," says Clark, who uses it for traffice surveys, man-hunts, rescue operations and traffic law enforcement. Clark and his five pilots operate the three Bells 1,200 hrs. annually. He says it costs 30 cents per mile to operate them.

FIRST COMMERCIAL DELIVERIES OF THE NEW HILLER 12E have gone to helicopter operators in Texas and Oregon — James M. Meade (left) of Houston and Robert Trimble (right) of Aetna Helicopters at Medford.

NEW CURTISS-WRIGHT AIR CAR must remain within 6 to 12 inches of the ground or water on its cushion of air. It has no wheels, axles, brakes, clutches, transmissions or frame. Release through louvers of low-pressure and low velocity air is used for suspension, propulsion, braking and turning in any direction. Grade climbing is limited to a 6% incline.

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announcing a new, exclusive used aircraft buying plan:

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Pledge of

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4 To have the aircraft thoroughly inspected by A & E mechanics.

5 To do my best to make certain that the aircraft is the best value, dollar for dollar, that your money can buy.

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Here's why the VAV buying plan is the best way to buy any airplane:

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Only top trade-ins are hand-picked for VAV certification.

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Each of these then gets a complete inspection to make it a better airplane and a better airplane value.

3

VAV certificate is awarded, which includes a complete evaluation report on the reverse side of certificate.

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We help provide you with low-cost financing.

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Whenever you see this pledge proudly signed and displayed in the showroom of a Beechcraft distributor or dealer, you can be sure of a better used airplane . . . certificated as a VERIFIED AIRCRAFT VALUE.

The following described aircraft has qualified as a

VERIFIED AIRCRAFT VALUE

Aircraft Model: Bonanza | Date Mfg.: 1955 | Reg. No.: N 3956 | Total Hours: 865

Engine Make and Power: Continental 245 HP | Total Hours: 865 | Hours Since Overhaul: 86

This aircraft has been thoroughly inspected by a licensed A & E mechanic as of the date certified below, plus a careful appraisal by our own inspection-service-management team, provides the basis for this report.

EQUIPMENT:

Full gyro panel. T-3 Auto pilot. Lear LTRA6 with localizer, Omnimeter. Lear ADF-12

REMARKS:

New paint job-1958-white & red. New upholstery. Radios checked and O.K. Real value.

Certified by Frank Sterner Date of inspection 4/6, 19 59

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Central Flying Service

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Alpha Aircraft
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The Norman Larson Co.
Oakland
Cochran Aviation, Inc.
Santa Ana
Martin School of Aviation, Inc.
San Bernardino
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Coral Gables
Tursair Exec. Aircraft & Serv., Inc.
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Roscoe Turner Aero. Corp.

IOWA
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Wathan Flying Service
Davenport
Elliott Flying, Inc.
Des Moines
Elliott Flying Service

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Western Planesales, Inc.
Kansas City, Kans.
Topeka Aircraft Sales & Service
Topeka
Topeka Aircraft Sales & Service
Wichita
United Airplane Sales, Inc.

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Blue Grass Airmotive, Inc.
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LOUISIANA
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Baton Rouge Aircraft, Inc.
Shreveport
Currey Sanders Aircraft Co., Inc.

MASSACHUSETTS
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Atlantic Aviation Corp.

MICHIGAN
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Francis Aviation
Pontiac
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Ypsilanti
Air-O-Fleet Corporation

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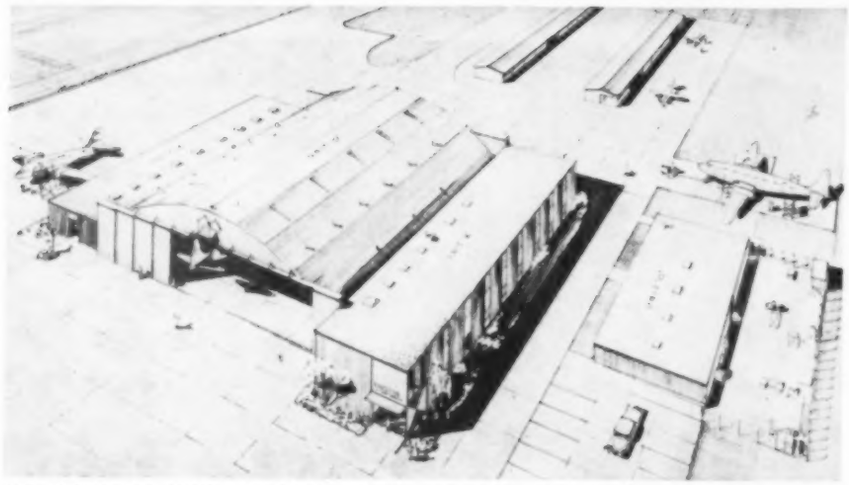

TO KEEP UP WITH DEMAND FOR CORPORATE AIRCRAFT MODIFICATIONS AND SERVICING, Executive Aircraft Service has started $250,000 worth of construction expanding its base at Redbird Airport in Dallas. L. V. Emery, president, said new structures on each side of the hangar will be a two-story building for offices, stockrooms and storage and a one-story shop for engines, hydraulics, radio and mill, while a third new building across driveway will be a warehouse. Existing floor space will almost be tripled. EAS is one of the nation's oldest and largest aircraft modification centers specializing in corporate Lodestars, DC-3's, and Convairs.

TWO-PLACE FORNAIRE FOR PRIMARY AND INSTRUMENT TRAINING proved so successful for United Beechcraft Sales at Wichita, Kansas, that a second Fornaire was added recently. Forney Aircraft Sales Manager Neal Church is shown (right) delivering second 3-control Fornaire to Jack Dixon of United Beechcraft Sales.

AIR REPORT

(Continued from page 8)

itinerant operations in 1958 than London Airport in England, which counted only 129,497 operations during the year. Landings and take-offs at 213 traffic control towers operated by FAA totalled 26,599,719 for 1958, up 6% over 1957. General aviation operations were up 16%, military operations were down 6% and airline operations were off 2%. In terms of traffic along the 182,575 miles of VHF and low-frequency Federal Airways, the distribution of traffic was 53% air carrier, 41% military and 6% general aviation.

AGE LIMITS FOR AIRLINE PILOTS are contained in FAA-proposed amendments to the Civil Air Regulations. FAA specifies 55 years as the limit for pilots in command of jet-powered transports unless the pilot held a rating for the particular aircraft either prior to his 55th birthday or the effective date of the regulation, and in addition specifies 60 years as the age limit for pilots on any airline transport.

INCREASED RANGE FOR AIRBORNE AND GROUND RADAR is claimed by Hughes Aircraft for a tiny "parametric amplifier" 8 ins. long by 6 ins. high by 1 in. wide designed to be added to radar sets already installed in airliners and ground stations. It boosts the microwave signals picked up by the antenna so as to increase the sensitivity of the receiver, doubling the distance at which targets can be detected and picking up previously undetectable targets such as small business planes and jets. Hughes describes the device as inexpensive, easily maintained and simple to incorporate in present equipment.

UNIVAC COMPUTERS ARE NOW WORKING AIR TRAFFIC PROBLEMS in ATC centers at Idlewild International Airport in New York

Lear-100 in Bonanza

A lot of radio performance with small and light package is featured in the photo at left, which shows how M. C. Morse of Dallas equipped his Beech K35 Bonanza, with installation by Norm Blake's Aircraftsmen at Oklahoma City. For $9,040 and 95 lbs. of weight, equipment includes ADF-12E2, 28 lbs., $1,200; Narco Mark V, 19 lbs., $1,280; Lear LNC-100 package, 39 lbs., $3,965 including 2 receivers, 1 transmitter, 2 navigation modules with marker beacon, 2 indicator-course selectors, 2 power supplies and two 1½ module shockmounts; Tactair T-3 autopilot, 9 lbs., $2,595 (installed by Beech). All units on panel are easy to reach, flying back course ILS is easy and performance is described as excellent. Equipment represents one-third cost of the airplane.

and National Airport at Washington. FAA says controllers transcribe flight information to paper tape which is then put through the computers, in which the information is compared and integrated with that already stored in a magnetic "memory." Instructions are then automatically printed.

SELF-PROPELLED MOBILE PASSENGER LOUNGES, to be used instead of long walk-way "fingers" to transport passengers between the terminal building and aircraft at the new Washington National Airport at Chantilly, Virginia, will be about 60 ft. long and 15 ft. wide, capable of seating 60-90 persons. Bids for their construction are being sought by FAA, which will purchase 20 of the machines.

MEMPHIS DOWNTOWN AIRPORT is now open, with 3,100-ft. hard-surfaced runway, fueling and a hangar. Located on Mud Island overlooking the Mississippi River, it is the closest landing strip to the downtown area. There is no landing fee and a free ferry across Wolf River puts passengers within a 5-min. walk of downtown, according to Dr. Mallory Harwell, treasurer of Memphis Downtown Airport, Inc.

FOUR MORE DOUGLAS DC-8 JETLINERS have been ordered by KLM, raising its order to 12. The four newly-ordered DC-8's will be powered by JT-3D turbofan engines.

NEW FOR LIGHTPLANE ENGINES is specially-formulated Wynn's Friction Proofing additive, FAA approved and marketed by Wynn through airports following use of the products on recent world's record endurance flights in Texas (50 days) and Las Vegas (64 days). Picture shows Actress Spring Byington, enthusiastic flier, receiving a six-pack of Wynn's additives from Jack DuBord, mechanic. The products are said to prevent sparkplug fouling, protect metal from wear and corrosion, keep engines clean and remove fuel moisture.

automatic altitude selector

automatic heading selector

dial your heading and altitude in flight...or before takeoff

exclusive new Mitchell controls automatically put you on heading at cruising altitude

exclusive—360° automatic heading selector offers completely automatic heading selection and heading lock for single engine and light twin aircraft. Simply dial your heading on the fully visible azimuth ring built into the Directional Gyro. The airplane executes a normal turn to the heading you select—regardless of how far original heading is from the new heading. And you can dial your heading anytime, whether the automatic pilot is on or off. When the Automatic Pilot is engaged, the airplane will start an immediate turn to the selected heading. **exclusive—automatic altitude selector** that also establishes normal climb or descent. With the autopilot on or off, you dial the altitude you want—even before takeoff. As soon as the autopilot is engaged after takeoff, the altitude control immediately puts your airplane into a normal climb, leveling off automatically when you reach the altitude you have selected. To let down, dial a lower altitude and the airplane lets down at normal rate of descent. **the all-transistor Mitchell automatic pilot** offers performance features usually found only on expensive equipment designed for large aircraft, yet the Mitchell costs only $2,425 for the 12-volt unit, $2,650 for the 28-volt system. Automatic course selector and automatic altitude control extra.

new Mitchell 2-control model is now available for almost all single-engine, 4-place aircraft for only **$1,095** (with Automatic Heading Selector, $1,480). The 2-Control Mitchell has all the features of the 3-Control model except pitch control, which can be added at any time.

approved for more single engine and light twins than any other automatic pilot

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Clinton Aviation Company
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Denver, Colorado

Cruse Aviation, Inc.
International Airport
and Clover Field Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Addison Airport
Addison, Texas (Dallas)

Executive Aircaft Company
Municipal Airport
Kansas City, Missouri

Poelman Aircraft Co.
New Orleans Airport
New Orleans, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Kenneth Starnes Aviation Service
Adams Field
Little Rock, Arkansas

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Memorial Airport
East Alton, Illinois

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Wichita, Kansas

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SMILING SERVICE is what you expect and always receive when our Authorized Cessna Service Stations solve your maintenance needs! We furnish factory skills, factory equipment and factory satisfaction. Cessnas are our specialty . . . and we follow a policy of giving Cessna users a little more, a little better service — LIKE OUR FAMOUS 1-2-3 CESSNA FLAT-RATE SERVICE!

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Cessna gives you big-airplane power for as little as $14,250

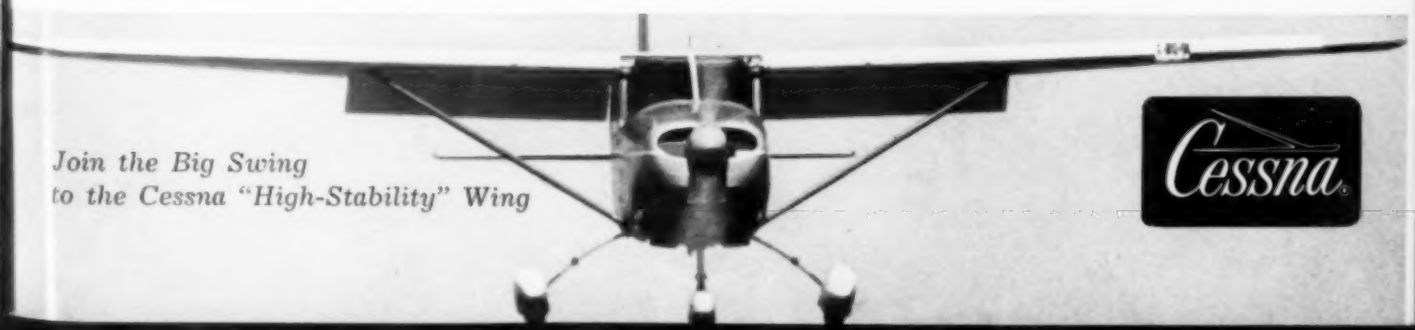
More Skylanes, 182s and 180s (Cessna's magnificent Mighty Middle Line) were sold in 1958 than any other airplane in their class. Reason? Cessna gives you big-airplane power and performance—plus big-airplane size! A power-packed 230-h.p. Continental engine boosts rate of climb to 1,030 ft./min. . . . elevates service ceiling to 19,800 ft. . . . broadens range to 667 miles.

The Cessna "High-Stability" Wing's advanced aerodynamic design and extra-large size assure you high-stability performance. For short-field landings, huge 4-position Para-Lift flaps give you complete choice of lift or drag. And for the best in passenger comfort, a luxurious, 4-place cabin (largest in its class) gives you plenty of head-shoulder-leg room.

A spectacular value in the new Mighty Middle Line is the fully equipped, 4-place Skylane (pictured above) with complete radio and navigational gear . . . wheel speed fairings . . . tinted glass in all windows . . . and many other features "package-priced" to save you money at $17,095 (Cessna 182: $14,600 . . . Cessna 180: $14,250—with std. equip.), f.a.f. Wichita.

In all, Cessna makes *seven* different models—one for every need. You can get a 1959 all-metal Cessna for as low as $6,995 with std. equip., f.a.f. Wichita.

For a demonstration ride, call your Cessna dealer now (see Yellow Pages in phone book). Also ask him about lease plans. Or write: Cessna Aircraft Company, Dept. **FM-10**, Wichita, Kans.



Join the Big Swing
to the Cessna "High-Stability" Wing

Cessna

New Business in the Hangar

BEN HOWARD & ASSOCIATES, Venice, California, designers and manufacturers of DC-3 modernizing components, report that the Northeast Airlines fleet of 11 DC-3's has been modified for speed increase of 20 mph. and payload increase of 430 lbs. The Howard components provide better aerodynamic streamlining, cooling drag reduction and more efficient exhaust system featuring a Siamese jet exhaust. Value of the components plus spares for the 11 DC-3's was $136,000.

REMMERT-WERNER, Lambert Field, St. Louis, has delivered a newly reconstructed Super-92 DC-3 to Fairbanks, Morse & Co. of Chicago, Jack Jones, chief pilot. It was equipped with lightweight landing gear doors, outboard wing tanks, retractable tail wheel and other modifications and has a cruising speed of over 205 mph. Installations included Bendix radar, Sperry A12 autopilot with extra C-2 gyrosyn compass and H5 electric horizon, engine analyzer, Collins 18S4 HF transceiver, 17L6 transmitter, dual 51R omni receivers, dual 51V2 glideslope receivers, Narco Sapphire transceiver, Bendix 3-light marker receiver, dual Bendix ADF's isolation amplifiers with dual cockpit speakers and custom panels. . . . Don Murray brought in Goodyear of Canada's Super-92 DC-3 for fresh Engine Works engine change, as did Bill Thompson with his Jessop Steel Super-92 DC-3, which also exchanged control surfaces. . . . A new interior was installed in the David Douglas Company de Havilland Dove, Charles Higgins, pilot. . . . Anderson & Pritchard Oil, E. E. Scott and Bill Dressel, pilots, sent in their Beech Twin for engine change, accessory overhaul and landing gear rework and Jim Baird and John Cunningham brought in an Allegheny Ludlum Steel Beech Twin for engine change and annual inspection. . . . Dexter Martin stopped by with his Robbins Floor Products Lodestar for engine change as did Jack Starkweather and Marvin Wright in their Potashnick Company Lodestar and E50 Twin Bonanza.

AIRCRAFT ELECTRONICS ASSOCIATION members discussed new methods of improving sales, installation and servicing of radio and electronic equipment in business planes at their recent annual meeting. Interest was on obtaining swifter action for shops seeking FAA certification; installation of TSO equipment in aircraft; the need for manufacturers to send technical experts to AEA shops to iron out equipment bugs; avoidance of problems including high-level noise in communication gear, slow deliveries, transit damage of equipment, lack of adequate inspection before shipment of equipment and other headaches. . . . **ANDERSON AIRCRAFT RADIO,** Detroit City Airport, has opened a

AIRCRAFT ELECTRONICS ASSOCIATION last month re-elected Charles O. Peacock (below) of Denver as president; Phil Stomberg, vice president; Gene Baker, secretary, and Cal White, treasurer.

The Artificial Horizon isn't "Artificial" Anymore!

Now you can see yourself fly...with the

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3-D HORIZON

- Offers the best possible help for pilot's loss of his most critical aid—visual contact with the ground.
- Inhibits tendency of all pilots toward dangerous vertigo—even under extreme stress conditions.
- Gives instantaneous, precise 3-dimensional attitude readings, making it easier and more relaxing to fly, even in rough air.
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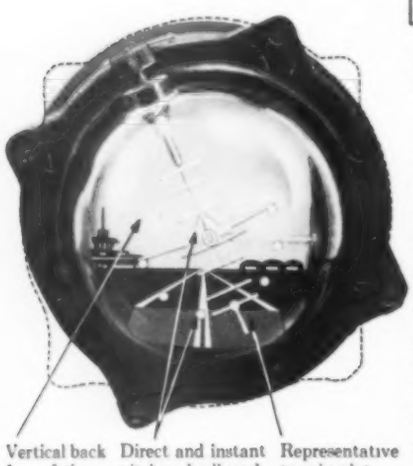

Vertical back face of the instrument gives full panoramic skyline.

Direct and instant pitch and roll readings given from miniature airplane and pointer from terrain platform.

Representative terrain platform remains parallel to ground at all times.

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The ultimate in a functional flight instrument,

a *perfect*, *instantaneous* and *sensitive* portrayal of the attitude of your aircraft!

Fly your plane safely . . . by merely flying the little aircraft in the New 3-Dimensional Horizon.

The 3-D Horizon allows you to make 180° and all other turns with confidence and ease . . . helps cut instrument training time considerably—because it helps to remove the feeling of disorientation and the accompanying fear. *It instills confidence.*

To see for yourself the outstanding features of this instrument, contact your local operator or write direct to arrange a free demonstration ride.

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Seventy-four years is a lot of aviation experience when it is divided among only a few key people. At SOUTHWEST AIRCRAFT, Inc., we take pride in the fact that our superintendents, Mr. J. W. Donathan and Mr. James F. Powers, together have over 40 years of experience in aircraft maintenance and service. Both are Designated Inspectors by the Federal Aviation Agency. Our company president, Mr. Roy R. Taylor, holds A&E license No. 846 and started his aviation career in 1925. The fourth member of our management team, Miss Bobbie Taylor, grew up in the aviation business and is too young to make the claims of a pioneer. But her intimate knowledge of this field qualifies her as one of the most capable business managers in the aviation business.

This all adds up to a wealth of aviation experience and know-how that is available to you when you rely on SOUTHWEST AIRCRAFT, Inc., for your aircraft service and maintenance. Give us a chance to serve you and you too will know why we are so proud of our great team. Just land south at Meacham Field, kick left rudder and get ready for a real Texas type welcome.

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President

JETSTAR TWINS TOGETHER FOR FIRST TIME were photographed in Georgia last month between demonstrations. Lockheed is in production on 4-engine, 600-mph. Jetstars ordered for 1961 delivery by corporate customers in advance of possible military orders.

FIRST GRUMMAN GULFSTREAM DELIVERY was made last month to Sinclair Refining's Henry W. Boggess, (left above). With him are L. B. Litrell (center), vice president of Pacific Airmotive, which is installing the interior and equipment for Sinclair, and Henry J. Schiebel, Grumman commercial sales manager.

new branch service facility at Willow Run Airport. . . . **NATIONAL FLYING SERVICE**, Berry Field, Nashville, has received FAA Air Agency Certificate No. 4360 covering radio communications and navigation equipment, autopilot, accessories, airframe, power plant and propellers, according to Dewey A. Smith. . . . **CLOVER FIELD RADIO SUPPLY** has changed its address from 3200 to 3231 Airport Ave., Santa Monica, according to Vernon McCullough. . . . **SKYMOTIVE, INC.**, address is Chicago-O'Hare International Airport, Chicago, but the mail address continues to be P. O. Box 448, Park Ridge, Ill., says Carl Schroeppel, systems engineer.

DALLAS AERO SERVICE, Love Field, installed new interior and engine change in Max Partridge's Kirsch Company de Havilland Dove from Sturgis, Mich. . . . The E. J. Benes Company Dove from Cleveland received annual inspection, combustion heater installation and exhaust augmentors. . . . Jack Riley's No. 8 Cessna 310 exhaust modification and conversion was delivered. . . . Dan Dugan Oil Transport Cessna 310 was in for modifications and inspection. . . . Engine changes were performed for a Phillips Petroleum DC-3, Rodman Supply's DC-3, Shell Oil Dove from Den-

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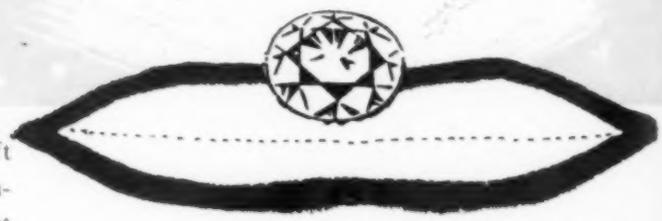

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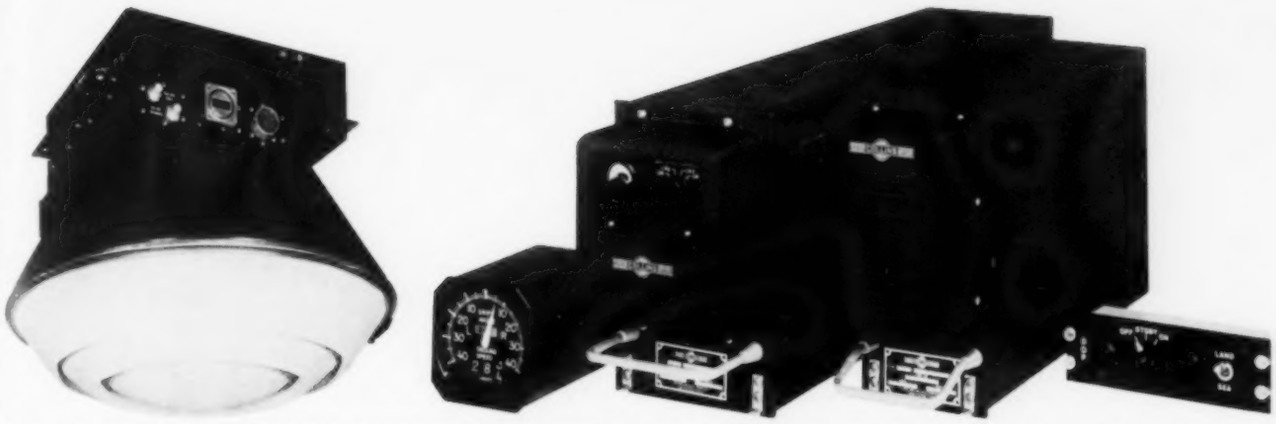

NEW LIGHTWEIGHT COLLINS RADIO DOPPLER RADAR NAVIGATION SYSTEM, for automatic ground speed and drift determination, weighs 56.5 lbs. for single system and 98.5 lbs.for dual system. Antenna (above left) requires only 4 sq. ft. of radome area and is fixed-lens, horn-fed type having no active circuits with all beams of dual system using entire lens aperture. Indicator, transmitter-receiver, computer-tracker and control units are pictured. The Collins DN-101 directs three X-band beams toward the earth and accurately measures the frequency shift of their return for accurate ground speed and drift. It utilizes 11 tubes and 40 transistors, with 200-watt power demand. It was designed for airline use.

ver, Franklin Supply Dove and Olan Mills' Aero Commander.

PACAERO ENGINEERING CORP., Municipal Airport, Santa Monica, delivered a Learstar Mark II to Jim Ketner, chief pilot for Texas Eastern Transmission of Shreveport, which now has three Learstars. . . . Gabe Ludden received delivery of a Learstar Mark II for Central Soya Co., Fort Wayne. . . . Ralph Smith's Dayton Newspapers' Learstar was in for radar installation, paint job and PacAero's alternate fuel metering source. . . . E. C. Little brought in Westinghouse Electric's Douglas B-23 for double engine change, periodic inspection and other work. . . . PacAero's alternate fuel metering source was installed in Ross Bennett's Sangamo Electric Learstar Mark II. . . . Miscellaneous work was performed for John Lyon's Malco Refineries Lodestar, Gillette's Learstar, C. B. Dickinson's Square D Learstar, Bob Okenfus's Avco Learstar and Lloyd Rondeau's Solo Cup Learstar.

EXECUTIVE AIRCRAFT SERVICE, Redbird Airport, Dallas, performed 1,600-hr. inspection, engine change and other work on Union Producing's Grumman Mallard, E. P.

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Peter Flagg is president of the C. N. Flagg Company of Meriden, Connecticut... the largest specialized pipe line contractors in the Eastern U.S. The company operates a two-engine, seven-passenger Aero Commander and employs a full-time pilot.

"We were flying along at 8,500 feet," says Mr. Flagg, "when I suddenly noticed a jet turning sharply away not 500 feet from our left wing. He was so close my passengers said they could see the expression on the pilot's face. I am convinced that because my plane was liberally painted with Day-Glo, the jet pilot had time to take evasive action. I feel that Day-Glo saved my life."

This is just one of hundreds of experiences reported on what a gallon or two of Day-Glo Aviation Paint has meant to pilots and control tower operators, too. These provable case histories demonstrate the protection afforded by a paint that is four times more visible than ordinary paint, particularly under poor visibility conditions.

The U.S. Air Force evaluation proved even more dramatic. After a year in which they suffered nine "see-and-be-seen" mid-airs, the Air Training Command decided to paint some 1,600 planes. These aircraft were alive with Day-Glo paint and "see-and-be-seen" mid-airs dropped to ZERO on the fluorescent painted aircraft.

Genuine Day-Glo Aviation Paint with the Filteray® clear overcoat lasts and lasts, according to Flagg. "Even though my plane has been hangared very little since it was painted last summer, the paint job still looks like new."

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(Cotton) Jeter, chief pilot. . . . Cabi and other work was performed fo Russell Purchase on his Dow Chemica DC-3 from Midland, Mich. . . . Harol Lamm, maintenance chief, was in wit Butterworth System's Convair 240 fo relicense, 100-hr. inspection, exterio paint job and other work. . . . Jim Smith came in for routine work o one of Sid Richardson's DC-3's.

ATLANTIC AVIATION, Teterboro Airport, N. J., announces it is now serving Esso Turbo Fuel 1-A, maintaining 20,000 gals. in storage.

AIRESEARCH AVIATION SERVICE, Los Angeles International Airport, has completed interior work and special soundproofing in North American Aviation's UCX prototype Sabreliner jet utility transport. Interior modifications include a 4-place seating arrangement with table, galley and closet for the twin jet. Job was done at North American's facility. . . . Earl (Red) Harding brought in Pontiac Refining's Convair 240, purchased from Fred Ayer, for custom interior, Bendix radar, auxiliary power unit, exterior painting, additional fuel capacity with gross weight increase, and miscellaneous radio work. . . . Bill van der Kloot brought in Johns-Manville's new Fairchild F-27 for exterior painting using white, royal blue and gold stripes. . . . Furniture for executive interior installation in Germany is being built

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BUSY AND BUSHY PILOTS, all sporting beards, were photographed at Horton & Horton in Ft. Worth while waiting for interiors to be installed in their new turboprop Fairchild F-27's. Left to right are Ken Colthorpe, chief pilot for Champion Sparkplug; Bill Horton, the interior expert; Harry Guest, chief pilot for Kimberly-Clark, and Chris Chaffee, Colthorpe's co-pilot.

for the West German Minister of Defense's Convair 440.

L. B. SMITH AIRCRAFT CORP., Miami International Airport, is well along with pressurized cabin production for Douglas A-26. . . . New interior was installed in Oman Construction's Lodestar, Jay Hibbets, pilot. . . . Dave Lindsay was in for radio work in his Lindsay Newspapers North American F-51. . . . New Super 46-C interiors were installed in two Associated Air Transport C-46's. . . . Long-range fuel system and Super 46-C interior were installed in a Transair-Sweden C-46.

PACIFIC AIRMOTIVE, Burbank, completed interior and airframe modifications for a DC-6A and DC-6B of Canadian Pacific Airlines. . . . A Trans-Caribbean Airways DC-6A received inspection, landing flare installation, partial paint job, various interior modifications and other work. . . . Jim Stevenson and Chuck Wheeler received inspections for their two Union Oil Convairs. . . . Dwight Reynolds was in with S. A. Camp's Beech Twin from Bakersfield for inspection and other work.

PIEDMONT AVIATION, Smith Reynolds Airport, Winston-Salem, was recognized in two top awards at the recent Reading Aviation Service show. An interior installed by Piedmont won first place for a Fairchild F-27 owned by the Noland Co., Newport News, Va., and first place in three categories was won by a Beech Super 18 purchased by Coble Construction of Greensboro from Greensboro-High Point Air Service, a Piedmont dealer. . . . Hennis Freight Lines' Super 18 was in for installation of ram air scoops and Hartzell 3-blade props.

DUPONT AIRCRAFT SERVICE, Miami International Airport, flew a repair crew to Grand Cayman Island to service a Cayman Brac Airways Aero Commander for ferry flight to Miami, where major repairs were performed. . . . Auxiliary fuel tanks were installed in a Cessna 310 for Central Mercedita of Puerto Rico. . . . Magnaflux service, maintenance and inspection were performed for two Associated Air Transport C-46's.

FAA APPROVAL FOR PIEDMONT AIRLINES USE has been granted for the new Flite-Tronics PC-8D transistorized power supply module, which replaces rotary dynamotor for marker receivers. The PC-8 unit weighs only 1 pound and has circuitry to prevent transistor failure even if subjected to maximum surges of transient voltage.

NARCO HAS APPOINTED TWO NEW REGIONAL DISTRIBUTORS, listed by Gail Quinby, sales manager,

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PILOT-ENGINEERED—back-lighted Mil Std remote control with all ADF features for easiest use. Includes tuning meter, loop test position, C W operation.

ENTIRELY NEW—super-sensitive tube and transistor circuitry. Needs no high voltage power supply.

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DTR-360A-1	360 Channel Transceiver
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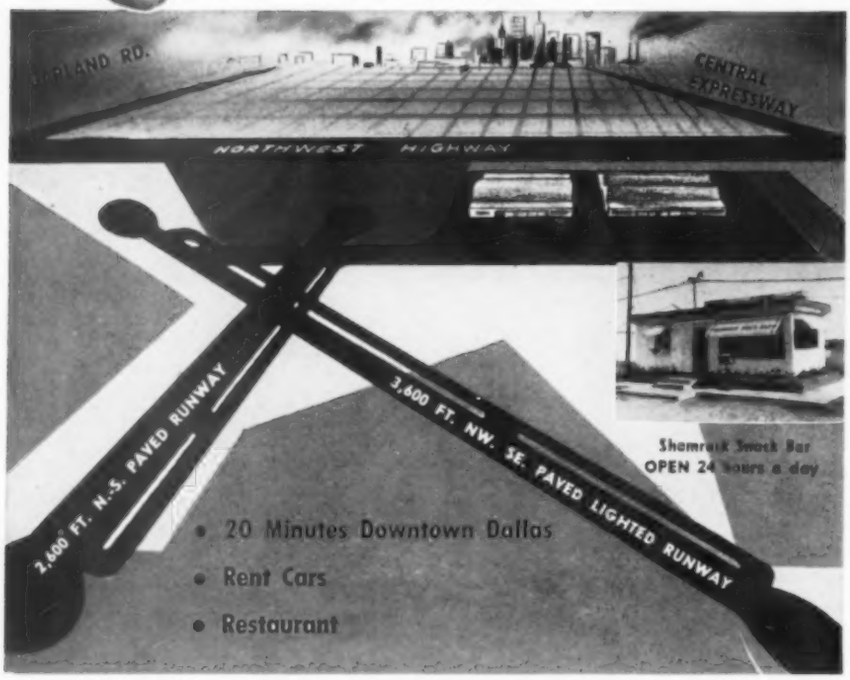

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IMPROVED PERFORMANCE AND CHANGES IN PRODUCTION-MODEL LOCKHEED JETSTARS have been listed by Lockheed to include: 1. Clam-shell thrust reversers will be added and will reduce landing distance by several hundred feet with the Jetstar stopping less than 2,000 ft. from touchdown. Thrust reversers will also provide better control in crosswind and on icy runways and will increase tire and brake life. 2. Addition of high-lift wing leading edge slats for still shorter take-offs and landings and to reduce stall speed to 86 knots. 3. Installation of dual-wheel main and nose gear. Powered by four P & W JT-12 jet engines, the production models will climb at almost 5,000 fpm. Gross landing weight will go up 2,000 lbs. to 28,000 lbs. Range of 2,850 miles with 45-min. reserve will be available. Other changes include overhead visibility panels in cockpit, new and brighter landing lights, new provisions for de-icing, new provisions for radar and dual electronic gear inside forward-sliding nose cone, new nacelle provisions for fire extinguisher systems and improved heating and ventilation.

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OR has gone to Major Andre E. Turcat of France, chief test pilot of Sud Aviation, for his flying in 1958 during which he became the first test pilot in the world to exceed Mach 2 in a ramjet-powered vehicle, the Griffon 02. At the same time, trustees of the Clifford B. Harmon Trust announced that no awards were being made in 1959 for aviatrix or aeronaut. The Harmon trophies are perpetual American awards for outstanding international achievements in aeronautics.

THE 1959 EDITION OF AVIATION FACTS AND FIGURES, 152-page official standard reference book of the Aerospace Industries Association of America (formerly Aircraft Industries Association), has been published and is available at $2 per copy postpaid from American Aviation Publications, 1000 Vermont Ave., NW, Washington 5, D. C.

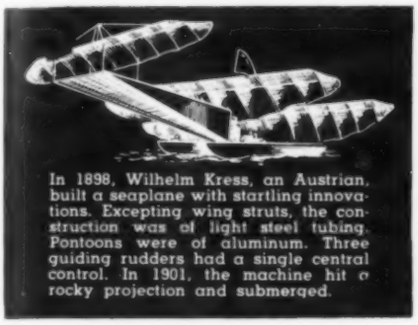
GANNET WIDGEON

(Continued from page 44)

and modified nose cone, with new engine crankcase venting system. The engines are given a complete major overhaul with all tolerances returned to manufacturer's new specifications, with chromed cylinders and neoprene covered ignition harness. The oil system includes two 6-gal. vented tanks that eliminate breather blow-by.

Standard equipment includes full blind flight group, Lear Navcom 100, 90-channel transmitter and 190-channel receiver, Lear Navpak 100 and Lear ADF-12, with gonio indicator and gonio antenna.

Harris said the Gannet is a completely modern airplane when it rolls off the production line, ready to go.



In 1898, Wilhelm Kress, an Austrian, built a seaplane with startling innovations. Excepting wing struts, the construction was of light steel tubing. Pontoons were of aluminum. Three guiding rudders had a single central control. In 1901, the machine hit a rocky projection and submerged.

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LOCKHEED LODESTAR . . . 28 hours since periodic inspection. 2,535 total airframe hours since new . . . Comfortably styled, L.B.S. 9 passenger interior with 3 place convertible lounge; picture windows; full size lavatory; buffet and wardrobe . . . Full Radio, completely equipped for all weather flight with anti-icing and de-icing boots . . . New green and white Silicone exterior.

LOCKHEED LODESTAR . . . 4,300 total airframe hours since new. Engines (since OH): L—730 hours; R—320 hours. Props (since OH): L&R-175 hours . . . Well appointed 10 passenger interior includes: 6 reclining chairs, 4 place sofa, tables, bar, built-in tape player. Picture windows . . . Full Radio and IFR instrumentation, hot air heating. Complete anti-icing system and de-icing boots.

AERO COMMANDER 680 . . . 638 hours since new . . . 7 place seating with icebox hassock seat . . . Green and white upholstery and exterior . . . Custom edge-lited panel includes: LTVR36 transceiver; Sun Air 5 channel 4F transceiver; ADF-12; Narco Omni; LTRA6; 3 lite marker; R89M Glideslope.

DOUGLAS DC-3 . . . 27,185 total airframe hours. 1,229 hours since overhaul . . . L.B.S. interior styled by Charles Butler Assoc., has accommodations for 13 passengers. Seating arranged in 3 individual groupings. Ample storage and bar cabinets, folding conference table and several fold-away desks . . . forward compartment converts into sleeping area. Two 17 x 57 picture windows . . . Complete Radio and IFR Panel . . . Carburetor, Propeller and Windshield de-icing systems and de-icer boots.

SUPER 46-C . . . NEW ZERO TIME, L.B.S. 50,650 LB. GROSS 'T' CATEGORY AIRCRAFT . . . Produced for commercial or executive, passenger or cargo configurations by L.B.S.

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DC3 — Deluxe executive interior, lightweight landing gear doors, Collins and Bendix radio. Freshly overhauled. Immediate delivery with new ship guarantee. Sale or lease. See at Trenton.

Super-92 C47 — Newly reconstructed, with deluxe executive interior, with Engine Works Super 92 engines, Collins and Bendix radio, lightweight landing gear doors. Immediate delivery for sale or lease, with new ship guarantee. Now being completed at Pompano.

PBY — Super-92 engines, flight controls relocated to cockpit, stainless steel firewalls, dual instrumentation, Collins 17L4-51R3, dual omni, autopilot, etc., 16 passenger deluxe executive interior, many extras. Traded in. See at Trenton.

Grumman Goose — Amphibian. Hartzell props, deluxe executive interior, metal wings. Immediate delivery. See at Trenton.

Aero Commander 680 — Late model, like new, 600 hours total. Seven place, full executive radio. Immediate delivery. Trade in on Super-92 DC3. See at Trenton.

Lodestar — 5800 total hours, -72 engines 150 SOH. Dual instrumentation, Collins 17L3-51R3, 51R3 omni, dual ADF, HF, standby VHF, etc. Executive interior, now in use. Immediate delivery. See in St. Louis.

Convair 340, Martin 404
and other **DC3** in work

Super-92 DC3 — New type executive-cargo configuration. Engine Works Super-92 engines, fully deluxe executive interior with cargo door and other cargo facilities, immediately adaptable for either use. Immediate delivery on sale or lease with new ship guarantee. See at Pompano.

Custom 18 Twin Beeches — Three to choose from. 1951, engines and props NTSO, hydromatic full feathering, Collins omni, A.R.C. omni, A.R.C. 210 VHF, 3 light marker, isolation amplifier with speakers, standby VHF, ADF, ILS, etc. Boots and anti-icers, airstair, deluxe Custom 18 interiors with picture windows. Low time airframes, NTSO complete overhauls. New ship guarantee. Now in work at Toledo, Trenton, and Pompano.

E50 Twin Bonanza — Total time 350 hours. Hartzell props, A.R.C. ADF, dual omni with Course Director, Sapphire VHF communications, etc. Taken in trade on Super-92 DC3. Immediate delivery. See at Trenton.

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D18

Just traded in on Super-92 DC3. Engines 300 hours SOH. 360 channel VHF, standby VHF, dual omni, ADF, ILS, etc., de-icers, etc. New ship guarantee.

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